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TABLES

IN

ILLUSTRATION OF THE THEORY

OF

DEFINITE PROPORTIONALS;

SHEWING THE

PRIME EQUIVALENT NUMBERS

OF THE

ELEMENTARY SUBSTANCES,

AND

THE VOLUME AND WEIGHTS IN WHICH THEY COMBINE.

COMPILED FOR THE USE OF CHEMICAL STUDENTS AND MANUFACTURERS.

BY

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INTRODUCTION.

THE following Tables of Prime Equivalents refer to hydrogen as *unity*, and are founded upon the assumption that the specific gravity of hydrogen is to that of oxygen as 1 to 16; 100 cubic inches of hydrogen being regarded, with Dr. Prout (*Annals of Phil.*, vi., p. 322), as weighing, at mean temperature and pressure, 2·118 grains, and 100 cubic inches of oxygen 33·8 grains; water, therefore, composed of 2 volumes of hydrogen, and 1 volume of oxygen, consists, by weight, of 1 of hydrogen and 8 of oxygen. The weight of 100 cubic inches of chlorine, at mean temperature and pressure, is assumed as=76·248 grains, so that the specific gravity of hydrogen is to that of chlorine as 1 to 36: these numbers, therefore, will represent the weights of the elements of muriatic acid gas, which consists of equal volumes of hydrogen and chlorine; and, assuming water to be a compound of 1 prime of hydrogen and 1 of oxygen, and muriatic acid, of 1 prime of hydrogen and 1 of chlorine,

the prime equivalent of water will be 9, and that of muriatic acid 37. The specific gravity of hydrogen, compared with nitrogen, is as 1 to 14;—100 cubic inches of nitrogen, therefore, will weigh, at mean temperature and pressure, 29·65 grains; and its specific gravity, compared with that of oxygen, will be as 14 to 16. Ammonia consists of 3 volumes of hydrogen and 1 of nitrogen, *condensed into the space of* 2 *volumes;* so that 100 cubical inches of ammonia will weigh 18 grains, and, assuming it to consist of 1 prime of nitrogen and 3 of hydrogen, its prime equivalent will be = 17.

It will be observed, from the above instances, that, supposing the *data* correct, oxygen, chlorine, and nitrogen, are represented by numbers which are entire multiples of hydrogen; and experiment bears us out in assuming that all other bodies admit of similar numerical representation. The following Tables exhibit a series of equivalents, each of which is a whole number, in reference to hydrogen as *unity*, and which, with the aid of the sliding-rule, as used in Dr. Wollaston's scale, will, it is hoped, be found of no inconsiderable use and convenience to the chemical student and operator.

The first of these Tables exhibits the specific gravity of the most important gases, with their equivalent weights and volumes, and is intended to assist

the student in acquiring correct notions of the relation between combining *weights* and *volumes*, and more especially to illustrate the important facts respecting the combinations of gaseous bodies, for which we are indebted to M. Gay-Lussac*, who has shown that they unite in very simple proportions, and that the diminution of bulk which they often suffer in combining, is also in an equally simple ratio.

It will be seen from this Table, that, assuming hydrogen as =1, the equivalent, or atomic weights as they are often called, are (with the exception of oxygen) represented by numbers expressing their respective specific gravities as compared with hydrogen; and, consequently, that their equivalent or combining volumes, are, with the same exception of oxygen, equal to that of hydrogen. Assuming water as a compound of *one* proportional or atom of hydrogen and *one* of oxygen, the equivalent weight of oxygen will be represented by a number equal to half its specific gravity compared with hydrogen, for water consists of one volume of hydrogen and half a volume of oxygen, and, consequently, the representative volume of oxygen in the following Table is only half that of hydrogen. In proceeding to the compound gases, the Table shows the component volumes determined as just stated,

* Memoires d'Arcueil, t. II.

and the next column exhibits the resulting volumes of the compounds. The relation of the equivalent number to the specific gravity compared with hydrogen, will be sufficiently obvious from a comparison of the resulting volumes with that of the equivalent of hydrogen. Thus it appears that the specific gravity of hydrogen being =1, that of steam is =9; that it consists, by *weight*, of 1 part of hydrogen and 8 of oxygen, and that one *volume* of steam is composed of one volume of hydrogen and half a volume of oxygen; and that one volume and a half of the component gases, are, in the compound, condensed into the space of one volume.

Muriatic acid is shown to be a compound of one volume of hydrogen and one volume of chlorine, and as the gases suffer no condensation by union, they form two volumes of muriatic acid, the specific gravity of which, in reference to hydrogen, is half that of its equivalent number, or 18·5, for it is composed by *weight* of 1 part of hydrogen and 36 of chlorine.

Hydriodic acid is similarly constituted of equal volumes of hydrogen and iodine vapour; the specific gravity of the former to the latter is as 1 to 125: the equivalent number of the compound, therefore, is 126, and its specific gravity compared with hydrogen is 126÷2=63.

Ammonia is composed of one volume of nitrogen

and three volumes of hydrogen: the specific gravity of nitrogen compared with that of hydrogen is as 14 to 1. Ammonia, therefore, consists by *weight* of 14 parts of nitrogen and 3 of hydrogen, and its equivalent number is 17. It will be observed that the four component volumes are compressed into two in the compound, so that the specific gravity of ammonia compared with that of hydrogen, is $17 \div 2 = 8{\cdot}5$, or half its equivalent number.

Sulphuretted hydrogen may be regarded as a compound of one volume of hydrogen and one volume of the vapour of sulphur; these two volumes are condensed into one, or, in other words, the original volume of the hydrogen is not altered by its union with sulphur. The combining weights are 1 of hydrogen and 16 of sulphur, forming 17 of sulphuretted hydrogen, which is the equivalent number of that gas, as well as its specific gravity in reference to hydrogen. The same remarks apply to phosphuretted hydrogen, and in the bihydroguret of phosphorus, one volume of the vapour of phosphorus and two of hydrogen are condensed into one.

In olefiant gas, the elements are 1 by weight of hydrogen and 6 of carbon, constituting 7 of the gas. One volume of hydrogen, and one of the vapour of carbon, are here seen condensed into half a volume of the compound: the original bulk, therefore, of the

hydrogen is reduced by one-half, and the specific gravity of olefiant gas, compared with hydrogen, is consequently 7×2, or 14; which might also be with propriety adopted as its equivalent. In the carburetted hydrogen of coal-mines (fire-damp) one volume of the vapour of carbon and two of hydrogen are condensed into one volume; it consists of 6 parts by weight of carbon and 2 of hydrogen, and its equivalent number is 8, which also expresses its specific gravity in reference to hydrogen.

The two next compounds present some peculiarities in regard to their atomic constitution, which are well worthy of notice. The crystallizable bicarburet of hydrogen, consists of 1 part by weight of hydrogen and 12 of carbon, or of 1 proportional of hydrogen, $=1$, and 2 proportionals of carbon, $6 \times 2 = 12$; its equivalent number, therefore, will be 13. These proportions, by weight, may be considered as representing two volumes of the vapour of carbon and one volume of hydrogen; but the resulting volume of the compound is only $\frac{1}{3}$ that of its components, or $\frac{1}{3}$ of the volume of hydrogen which it includes: one volume, therefore, of the substance in vapour, contains

$$\left.\begin{array}{l} 6 \text{ proportionals of carbon } . \; . \; 6 \times 6 = 36 \\ 3 \quad \text{,,} \quad \text{of hydrogen } . \; 1 \times 3 = \; 3 \end{array}\right\} = 39$$

the number 39, therefore, is its specific gravity, compared with hydrogen, and ought strictly to be con-

sidered as its prime equivalent, or the weight of its atom; 13 being the weight of one-third of a volume, as represented in the Table, which is of course equal to one-third of its atomic weight.

The next compound, called, in the Table, "Liquid Carburet of Hydrogen," is constituted by weight of 1 part of hydrogen and 6 of carbon: so far, therefore, it is similar to olefiant gas; but if we consider it as constituted of one volume of hydrogen and one volume of vapour of carbon, these elements are condensed to $\frac{1}{8}$ in the vapour of this liquid: in other words, 4 volumes or proportionals of hydrogen $=4$, and 4 of carbon $6\times4=24$, form one volume of the vapour, the specific gravity of which will, therefore, be 28; and, strictly speaking, the same number is its equivalent.

In arseniuretted and telluretted hydrogen, the hydrogen suffers no change of bulk by combining with the metals, and the compounds correspond to sulphuretted hydrogen.

The vapour of alcohol may be considered as composed of one volume of olefiant gas and one of the vapour of water, or 14 parts by weight of the former and 9 of the latter. These two volumes are condensed into one of alcoholic vapour, the specific gravity of which, in reference to hydrogen, as well as its equivalent number, is 23.

In the vapour of sulphuric ether, as compared with that of alcohol, half the water may be regarded as abstracted; it will thus consist of one volume of vapour of water, and two volumes of olefiant gas, the three being condensed into one.

Nitrous oxide is shown to consist of one volume of nitrogen, and half a volume of oxygen condensed into the space of one volume; the combining weights are 1 proportional of nitrogen = 14, and 1 of oxygen = 8, and the equivalent number of the compound is 22, which also expresses its specific gravity in reference to hydrogen as unity.

In nitric oxide, one volume of nitrogen and one of oxygen form two of the gas. The respective weights of the elements are 14 of nitrogen, and 16 of oxygen; the equivalent number of the compound is 30, and its specific gravity, compared with hydrogen, is as 15 to 1.

Nitrous acid consists of 1 proportional of nitrogen = 14, and 4 of oxygen, $8 \times 4 = 32$, or of one volume of nitrogen and two volumes of oxygen. The degree of condensation has not been precisely determined, but it is probable that the three component volumes are condensed into one volume of the compound, the equivalent number of which would be 46.

The composition of sulphurous acid is represented

by one volume of oxygen, and one of the vapour of sulphur: these two volumes are condensed, in the compound, into one; or, in other words, the bulk of the oxygen is unchanged by its combination with its own weight of sulphur. Sulphurous acid, therefore, may be regarded as a compound of 1 proportional of sulphur = 16, and 2 of oxygen $8 \times 2 = 16$, and 32 is its equivalent number and specific gravity in reference to hydrogen.

In carbonic oxide, the volume of oxygen is doubled by its combination with carbon, or one volume of the vapour of carbon by uniting with half a volume of oxygen, forms one volume of carbonic oxide; or 6 of carbon by weight, uniting to 8 of oxygen, form 14 of carbonic oxide.

In carbonic acid, the volume of the oxygen is not altered by combining with carbon: hence one volume of carbon vapour, or 6 parts by weight, combine with one volume of oxygen, or 16 by weight, to form 22 parts, or one volume of carbonic acid.

In chloro-carbonic acid, a volume of chlorine, and one of carbonic oxide, form one of this acid.

Cyanogen consists of 1 proportional of nitrogen and 2 of carbon; these are also the combining volumes: in the compound they are condensed into one volume.

Hydrocyanic acid, and chlorocyanic acid, are re-

spectively composed of one volume of hydrogen and one of cyanogen, and one volume of chlorine and one of cyanogen: no change of volume ensues; their equivalent numbers, therefore, 27 and 62, are double their specific gravities in reference to hydrogen.

Atmospheric air consists of a mixture of half a volume of oxygen, and two volumes of nitrogen; the respective weights of these gases are 8 and 28.

In sulphuret of carbon, a volume of the vapour of carbon, and two of the vapour of sulphur are condensed into one volume of the vapour of the sulphuret: the combining weights are 1 proportional of carbon = 6, and 2 of sulphur $16 \times 2 = 32$: these form 38 of the sulphuret, which is its equivalent number, and its specific gravity compared with hydrogen.

In chloric oxide, one volume of chlorine and two of oxygen are condensed into two volumes; its equivalent number is therefore 68, and its specific gravity in reference to hydrogen is 34.

The last column of this table shows the results of Mr. Faraday's experiments upon the liquefaction of gases.

The second table requires but little explanation: in it, the elementary substances, and their compounds, are arranged nearly in regular alphabetical order. The authorities upon which the equivalents of the

former are given, are with few exceptions annexed; and of the latter, the components are in most cases similarly exhibited. Where the word "theory" is attached to the substance, in place of the name of the analyst, it is not always to be understood that the number is a mere theoretical deduction, but that several experiments concur in rendering its correctness more than probable; experiments, however, are in some cases entirely wanting, and then the composition is inferred upon analogical principles. It is almost superfluous to remark that the numbers attached to the elements of compounds are those of the proportionals in which they combine: thus "CARBONIC ACID" is said to consist of 1 carbon + 2 oxygen, or 6+16; and by reference to the elements carbon and oxygen, 6 will be found the equivalent of the former, and 8 of the latter, &c. It may, however, here be observed, that the number of atoms included in the vegetable acids, are probably in some instances incorrect; at least, that the atomic view of their constitution, as given by Berzelius and some other chemists, is, in many cases, merely an approximation to the truth. The experiments now pursuing by Dr. Prout, will probably clear up many of the doubts and difficulties in which this subject is at present involved. For an historical account of the theory of proportionals, and for the different

modes of establishing its principles, and pursuing the investigations connected with it, the reader is referred to Dr. Wollaston's paper on the scale of equivalents published in the *Philosophical Transactions* for 1814; and to the second section of the second part of Dr. Turner's *Elements of Chemistry*.

The following examples of the mode of using the table of equivalents with the sliding rule* will serve to shew a few of the questions which it is calculated to answer, and the method of resolving them.

I. A solution of common salt (chloride of sodium) has been decomposed by nitrate of silver, and has afforded 135 grains of chloride of silver: it is desired to know the weight of the common salt which existed in the above solution, the quantity of sodium and of chlorine which it contains, and the quantity of nitrate of silver which has been decomposed in the production of the chloride, as well as the quantity of nitrate of soda which has been formed, and the composition of these several substances.

Bring the number 135 *upon the slider* opposite 146 (the equivalent of chloride of silver) *upon the rule;* we shall then find the number 55·5 *upon the slider,* opposite to the equivalent of chloride of so-

* A proper sliding-rule to be used with the following tables, is sold by Mr. Newman, mathematical instrument maker, Regent Street.

dium (60) *upon the rule;* and moreover, we learn that these 55·5 of salt contain 33·3 of chlorine, and 22·2 of sodium, for those numbers *upon the slider* will be respectively opposed to 36 and 24 *upon the rule,* which, as the Table shows, are the equivalents of chlorine and sodium.

Opposite 86 *on the rule,* the equivalent of nitrate of soda, we find 79·5 *upon the slider,* which therefore is the quantity of that salt formed by the decomposition, to produce which 159 parts of nitrate of silver (the number opposed to 172, its equivalent) must have been employed.

By similar proceeding, we shall find that 159 of nitrate of silver contain 109·1 oxide of silver, and 49·9 nitric acid, those numbers *upon the slider* being opposed to the equivalent numbers of oxide of silver and nitric acid *upon the rule,* namely, to 118 and 54.

The above 79·5 of nitrate of soda, by referring to the equivalents of nitric acid and soda, 54 and 32, are seen to contain 49·9 of nitric acid, and 29·6 of soda, composed of 22·2 sodium, and 7·4 oxygen (the number 22·2 *upon the slider* being opposed to 24 *upon the rule,* which is the equivalent of sodium: and the number 14·8 being opposed to 16, which is the equivalent of *two* proportionals of oxygen: hence $14{\cdot}8 \div 2 = 7{\cdot}4$). By referring to the equivalent of nitrogen, and to that of 5 oxygen *upon the rule,*

namely, to the numbers 14 and 40, it will be found, by reference to the opposed numbers *upon the slider*, that 49·9 of nitric acid (the proportion shown above in the nitrates of silver and of soda) consist of 12·95 nitrogen, and 36·95 oxygen; and lastly, that these elements would afford 66·5 of liquid nitric acid, composed of 49·9 dry acid, and 16·6 water, for the number 66·5 *upon the slider* is opposed to the equivalent of *liquid* nitric acid, composed of *one* proportional of dry acid, and *two* of water, or 54+18=72.

II. A manufacturer of calomel is desirous of knowing what quantity of common salt, and of protosulphate of mercury, should be consumed for the production of 100 lbs. of calomel, and what are the relative proportions of the other products formed.

Place the number 100 *upon the slider* opposite to 236, the equivalent of calomel *upon the rule;* then refer to the equivalent of protosulphate of mercury, which is 248, and 105 will be found opposed *upon the slider;* next refer to the equivalent of common salt, which is 60, and to it 25·4 is opposed *upon the slider;* so that 105 lbs. of protosulphate of mercury, and 25·4 lbs. of salt will be required for the production of 100 of calomel. By referring *upon the rule* to 36 and 200, the equivalents of chlorine and of mercury, it will be found by reference to the *slider* that 15·26 of the former, and 84·74 of the latter are the

constituents of 100 calomel (protochloride of mercury). If we now refer *upon the rule* to the equivalent of dry sulphate of soda, 72, we shall find *upon the slider* 30·5 opposed to it, which is the quantity of that salt that will be obtained as the residue of the operation. Now, 30·5 of sulphate of soda consist (as is seen by referring to the equivalents of sulphuric acid and soda, 40 and 32) of 16·94 acid and 13·56 soda: the quantity of sulphuric acid, therefore, in 105 of protosulphate of mercury, is also 16·9, and it is combined with 88·1 of protoxide of mercury (the number opposed *upon the slider* to 208, the equivalent of the protoxide of mercury) to constitute these 105 parts. And again, 88·1 of protoxide of mercury will be found to consist very nearly of 84·7 mercury and 3·4 oxygen, as may be learned by referring to 200 and to 24 *upon the rule:* the latter number is the equivalent of three primes of oxygen, and will be found opposed to 10·2 *upon the slider;* and $10{\cdot}2 \div 3 = 3{\cdot}4$.

But sulphate of soda usually occurs in commerce in the crystalline form, in which 1 proportional of the dry salt = 72, is united with 10 proportionals of water =90, so that the equivalent number of crystallized sulphate of soda *upon the rule* will be 162, opposed to which, *upon the slider,* we shall find 68·6, which accordingly represents the weight of crystal-

lized sulphate of soda, obtained by the union of 30·5 of the dry salt with 38·1 of water, which last number will be found *upon the slider* opposed to the number 90 *upon the rule,* which represents 10 proportionals of water.

If we assume that the manufacturer sets out with 100 lbs. of protosulphate of mercury, he will find, on placing 100 opposite to 248, and referring to the equivalents of calomel and salt, that it will afford him 95 lbs. of calomel, when mixed and sublimed with 24·15 of salt; that is, that 80·5 of mercury will require 14·5 of chlorine to produce 95 of calomel; and that 14·5 of chlorine are combined with 9·65 of sodium to form 24·15 of common salt.

If, instead of employing common salt and protosulphate of mercury in the formation of calomel, corrosive sublimate and mercury be used, the scale will show us that 100 parts of corrosive sublimate (perchloride of mercury) consist of 73·5 of mercury, and 26·5 chlorine, and consequently that 73·5 of mercury must be added to 100 of corrosive sublimate, to produce 173·5 of calomel, containing 147 of mercury, and 26·5 of chlorine.

In these instances no loss is allowed for, which, in conducting such operations upon the large scale, is inevitable; but they are not the less illustrative of the use of the scale to the manufacturer, as a test of the

perfection of his processes, which are more perfect in proportion as their results approach those which have been adduced.

For further illustrations of the principle and uses of the sliding-rule of chemical equivalents, the reader is referred to Dr. Wollaston's paper above quoted, to whom we are exclusively indebted for its invention, as far as these extensive applications are concerned. It will also prove highly useful in the laboratory, in all cases where the solution of equations is required; and it is hoped that, in the form here employed, the inaccuracies depending upon shrinkage of paper will be excluded, while the increased length of the scale, and greater consequent accuracy of its division, will contribute to the facility and convenience of the calculation. It is also presumed that, although the substitution of *numbers* for *names* may at first prove inconvenient to those who have been in the habit of using the scale in which the latter are laid down, a little practice will soon lead to facility in their use; and that when this is acquired, the memory will be greatly assisted in retaining the equivalent numbers, and consequently the composition and relations of bodies.

TABLE I.

SPECIFIC GRAVITIES OF GASES AND VAPOURS,

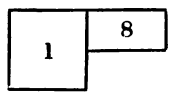
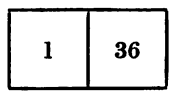
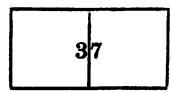
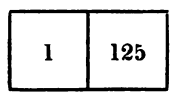
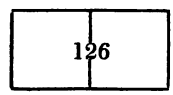
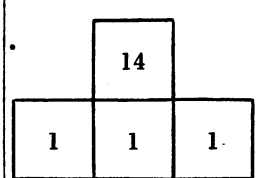
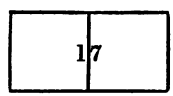
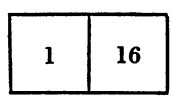
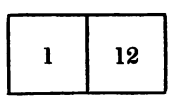
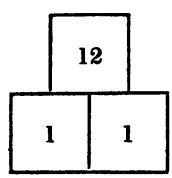
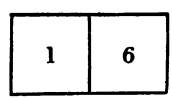
WITH THEIR

EQUIVALENT WEIGHTS AND VOLUMES.

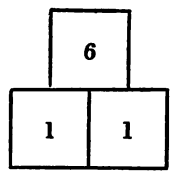
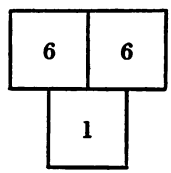
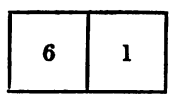
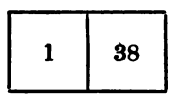
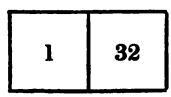
GASES AND VAPOURS.	100 Cubic In. weigh at 60 Therm. and 30-inch Barom.	Sp. Gr. compared with Air = 1.
	GRAINS.	
Hydrogen	2·118	0·0694
Oxygen	33·888	1·111
Chlorine	76·250	2·500
Iodine Vapour	264·750	8·675
Nitrogen	29·652	0·972
Sulphur Vapour	33·888	1·111
Phosphorus do.	25·416	0·833
Carbon do.	12·708	0·416
Arsenic do.	80·486	2 638
Tellurium do.	67·777	2·222

Sp. Gr. compared with Hydrogen=1.	Equivalent Number.	Representative Volumes.	Resulting Volumes of Compounds.	Pressure of Liquefaction. Atmospheres at
1·	1·	. . . 1		
16·	8·	. . . 8		
36·	36·	. . . 36 . . .	. . . . .	4 at 60°
125·	125·	. . . 125		
14·	14·	. . . 14		
16·	16·	. . . 16		
12·	12·	. . . 12		
6·	6·	. . . 6		
38·	38·	. . . 38		
32·	32·	. . . 32		

GASES AND VAPOURS.	100 Cubic In. weigh at 60 Therm. and 30-inch Barom.	Sp. Gr. compared with Air = 1.
	GRAINS.	
Steam	19·062	0·625
Muriatic Acid	39·183	1·284
Hydriodic do.	133·434	4·340
Ammonia	18·000	0·590
Sulphuretted Hydrogen	36·006	1·180
Phosphuretted do.	27·537	0·902
Bihydroguret of Phosphorus	29·652	0·972
Carburetted Hydrogen (Olefiant Gas) .	29·652	0·972

Sp. Gr. compared with Hydrogen=1.	Equivalent Number.	Component Volumes.	Resulting Volumes of Compounds.	Pressure of Liquefaction. Atmospheres at
9·	9·			
18·5	37·			40 at 50°
63·	126·			
8·5	17·			$6\frac{1}{2}$ at 50°
17·	17·			17 at 50°
13·	13·			
14·	14·			
14·	7·			

GASES AND VAPOURS.	100 Cubic In. weigh at 60 Therm. and 30-inch Barom.	Sp. Gr. compared with Air = 1.
	GRAINS.	
Bihydroguret of Carbon (of Mines) . .	16·944	0·555
Crystallizable Bicarburet of Hydrogen .	82·602	2·7066
Liquid Carburet of Hydrogen	59·304	1·9432
Arseniuretted Hydrogen	82·604	2·708
Telluretted do.	69·895	2·291
Naphtha Vapour	88·958	2·916
Oil of Turpentine Vapour	152·896	5·211
Alcohol Vapour	48·714	1·600

Sp. Gr. compared with Hydrogen=1.	Equivalent Number.	Component Volumes.	Resulting Volumes of Compounds.	Pressure of Liquefaction. Atmospheres at
8·	8·			
39·	13·			
28·	7·			
39·	39·			
33·	33·			
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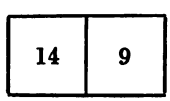
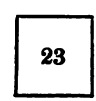
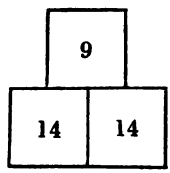
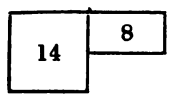
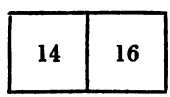
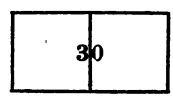
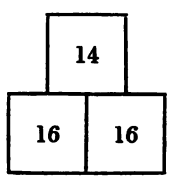
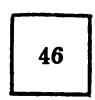
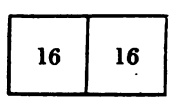
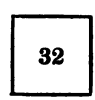
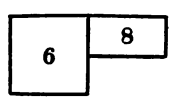
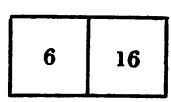
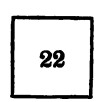
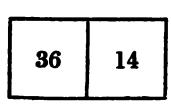
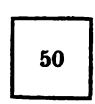
. . .	. . .	. . . . .	. . . . .	?
23·	23·			

GASES AND VAPOURS.	100 Cubic In. weigh at 60 Therm. and 30-inch Barom.	Sp. Gr. compared with Air = 1.
	GRAINS.	
Sulphuric Ether Vapour	78·36	2·570
Nitrous Oxide	46·596	1·527
Nitric do.	31·770	1·041
Nitrous Acid	97·428	3·162
Sulphurous do.	67·777	2·222
Carbonic Oxide	29·652	0·972
Carbonic Acid	46·597	1·527
Chlorocarbonic Acid	105·902	3·472

Sp. Gr. compared with Hydrogen=1.	Equivalent Number.	Component Volumes.	Resulting Volumes of Compounds.	Pressure of Liquefaction. Atmospheres at
37·	37·			
22·	22·			50 at 45°
15·	30·			
46·	46·			
32·	32·			2 at 45°
14·	14·			
22·	22·			36 at 32°
50·	50·			

GASES AND VAPOURS.	100 Cubic In. weigh at 60 Therm. and 30-inch Barom.	Sp. Gr. compared with Air = 1.
	GRAINS.	
Sulphuric Ether Vapour	78·36	2·570
Nitrous Oxide	46·596	1·527
Nitric do.	31·770	1·041
Nitrous Acid	97·428	3·162
Sulphurous do.	67·777	2·222
Carbonic Oxide	29·652	0·972
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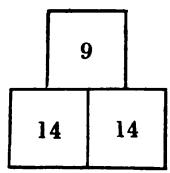
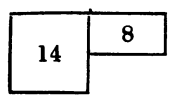
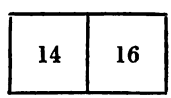
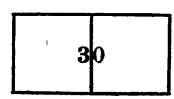
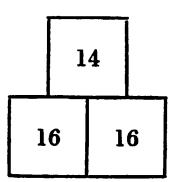
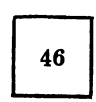
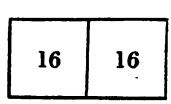
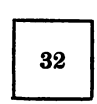
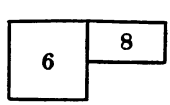
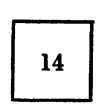
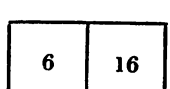
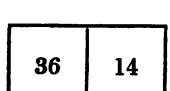
Sp. Gr. compared with Hydrogen=1.	Equivalent Number.	Component Volumes.	Resulting Volumes of Compounds.	Pressure of Liquefaction. Atmospheres at
37·	37·			
22·	22·			50 at 45°
15·	30·			
46·	46·			
32·	32·			2 at 45°
14·	14·			
22·	22·			36 at 32°
50·	50·			

TABLE II.

EQUIVALENT NUMBERS OF SIMPLE AND COMPOUND BODIES.

EQUIVALENT NUMBERS.

Acid, Acetic, *dry* . . .	(Berzelius)	4 Carbon	(6×4)=24	50
		3 Oxygen	(8×3)=24	
		2 Hydrogen	= 2	
.. .. *crystallized* or *glacial*	(J. and P. Taylor)	1 Dry acid	=50	59
		1 Water	= 9	
.. Antimonic .. Antimonious	See Antimony.			
.. Arsenic, *dry* . .	(Berzelius)	1 Arsenic	=38	62
		3 Oxygen	(8×3)=24	
.. Arsenious, *white arsenic* . .		1 Arsenic	=38	54
		2 Oxygen	(8×2)=16	
.. Benzoic . . .	(Berzelius)	15 Carbon . . .	(6×15)=90	120
		3 Oxygen . . .	(8×3)=24	
		6 Hydrogen	= 6	
.. Boracic, *dry* . .	(Davy)	1 Boron	= 8	24
		2 Oxygen	(8×2)=16	
.. .. *crystallized* .	(do.)	1 Dry acid	=24	42
		2 Water	(9×2)=18	

Acid—				
..	Carbonic		1 Carbon . . . . . = 6 2 Oxygen . . . . (8×2)=16	22
..	Chloric . .	(Gay-Lussac)	1 Chlorine . . . . . =36 5 Oxygen . . . . (8×5)=40	76
..	Chloriodic	(do.)	1 Chlorine . . . . . = 36 1 Iodine . . . . . =125	161?
..	Chlorocarbonic .	(J. Davy)	1 Carbon . . . . . = 6 1 Oxygen . . . . . = 8 1 Chlorine . . . . . =36	50
..	Chlorocyanic .	(Gay-Lussac)	1 Nitrogen . . . . . =14 2 Carbon . . . . (6×2)=12 1 Chlorine . . . . . =36	62
..	Chromic . .	(Berzelius)	1 Chromium . . . . . =28 3 Oxygen . . . . (8×3)=24	52
..	Citric	(do.)	4 Carbon . . . . (6×4)=24 4 Oxygen . . . . (8×4)=32 2 Hydrogen . . . . . = 2	58
..	.. *crystallized* . .	(do.)	1 Dry acid . . . . . =58 2 Water . . . . (9×2)=18	76
..	Columbic	(do.)	1 Columbium . . . . =144 1 Oxygen . . . . . = 8	152

Acid—					
..	Cyanic	(Gay-Lussac)	1 Cyanogen . . . . . = 26 1 Oxygen . . . . . = 8		34
..	Ferrocyanic	Porrett and Gay-Lussac	2 Hydrogen . . . . . = 2 1 Iron . . . . . = 28 3 Cyanogen . . . (26 × 3) = 78 OR: 2 Hydrocyanic acid . (27 × 2) = 54 1 Cyanuret of Iron . . . = 54		108
..	Fluoboric	(Davy)	1 Boron . . . . . = 8 1 Fluorine . . . . . = 16		24
..	Formic	(Berzelius)	2 Carbon . . . . (6 × 2) = 12 3 Oxygen . . . . (8 × 3) = 24 1 Hydrogen . . . . . = 1		37
..	Fulminic.—See Cyanic.				
..	Gallic	(do.)	6 Carbon . . . . (6 × 6) = 36 3 Oxygen . . . . (8 × 3) = 24 3 Hydrogen . . . . . = 3		63
..	Hydriodic	(Gay-Lussac)	1 Iodine . . . . . = 125 1 Hydrogen . . . . . = 1		126
..	Hydrochloric.—See Muriatic.				
..	Hydrofluoric	(Davy)	1 Fluorine . . . . . = 16 1 Hydrogen . . . . . = 1		17

ACID—

.. Hydrophosphorous . (Davy) { 2 Phosphorous acid . (20×2)=40 ; 1 Water . . . . . = 9 } 49

.. Hydrosulphuric } See SULPHURETTED HYDROGEN.
.. Hydrothionic . }

.. Hyponitrous . (Gay-Lussac) { 1 Nitrogen . . . . . =14 ; 3 Oxygen . . . . (8×3)=24 } 38

.. Hypophosphorous { Dulong and Davy } { 2 Phosphorus . . (12×2)=24 ; 1 Oxygen . . . . . = 8 } 32

.. Hyposulphuric { Welter and Gay-Lussac } { 2 Sulphur . . . (16×2)=32 ; 5 Oxygen . . . . (8×5)=40 } 72

.. Hyposulphurous . (Herschel) { 1 Sulphur . . . . . =16 ; 1 Oxygen . . . . . = 8 } 24

.. Iodic . . . . . (Davy) { 1 Iodine . . . . . =125 ; 5 Oxygen . . . (8×5)= 40 } 165

.. Malic or Sorbic . (Vauquelin) { 3 Carbon . . . . (6×3)=18 ; 4 Oxygen . . . . (8×4)=32 ; 10 Hydrogen . . . . . =10 } 60

.. Molybdic . . (Bucholz) { 1 Molybdenum . . . . =48 ; 3 Oxygen . . . . (8×3)=24 } 72

.. Molybdous . . . (do.) { 1 Molybdenum . . . . =48 ; 2 Oxygen . . . . (8×2)=16 } 64

.. Mucic.—See SACLACTIC.

ACID—

..	Muriatic	(Davy)	1 Chlorine . . . . . =36 1 Hydrogen . . . . . = 1	37
..	Nitric, *dry* .	Wollaston and Gay-Lussac	1 Nitrogen . . . . . =14 5 Oxygen . . . . (8×5)=40	54
..	.. *liquid.*	Sp. gr. 1·50. (Phillips)	1 Dry acid . . . . . =54 2 Water . . . . . =18	72
..	Nitrous . .	(Gay-Lussac)	1 Nitrogen . . . . . =14 4 Oxygen . . . . . =32	46
..	Oxalic, *dry* .	(Dobereiner)	2 Carbon . . . . (6×2)=12 3 Oxygen . . . . (8×3)=24 OR: 1 Carbonic oxide . . . =14 1 Carbonic acid . . . . =22	36
..	.. *crystallized* . . .	(Thomson)	1 Dry acid . . . . . =36 4 Water . . . . (9×4)=36	72
..	Oxiodic.—See IODIC.			
..	Perchloric . . .	(Stadion)	1 Chlorine . . . . . =36 7 Oxygen . . . . (8×7)=56	92
..	Phosphoric . . .	(Davy)	1 Phosphorus . . . . . =12 2 Oxygen . . . . (8×2)=16	28
..	Phosphorous . . .	(do.)	1 Phosphorus . . . . . =12 1 Oxygen . . . . . = 8	20
..	Prussic.—See HYDROCYANIC.			

ACID—

.. Purpuric . . . . (Prout) { 2 Carbon . . . . (6×2)=12; 2 Oxygen . . . . (8×2)=16; 2 Hydrogen . . . . . = 2; 1 Nitrogen . . . . . =14 } 44

.. Saclactic . . (Berzelius) { 6 Carbon . . . . (6×6)=36; 8 Oxygen . . . . (8×8)=64; 5 Hydrogen . . . . . = 5 } 105

.. Selenic . . . . . (do.) { 1 Selenium . . . . . =40; 2 Oxygen . . . . (8×2)=16 } 56

.. Sorbic.—See MALIC.

.. Stibious } See ANTIMONY.
.. Stibic . }

.. Succinic . . . (Berzelius) { 4 Carbon . . . . (6×4)=24; 3 Oxygen . . . . (8×3)=24; 2 Hydrogen . . . . . = 2 } 50

.. Sulphocyanic?

.. Sulphonaphthalic . (Faraday) { 2 Sulphuric acid . (40×2)= 80; 20 Carbon . . . (6×20)=120; 8 Hydrogen . . . . . = 8 } 208

.. Sulphovinic . . (Hennell) { 2 Sulphuric acid . (40×2)=80; 4 Carbon . . . . (6×4)=24; 4 Hydrogen . . . . . =4 } 108

ACID—				
..	Sulphuric, *dry* .	(Berzelius)	1 Sulphur . . . . . =16 3 Oxygen . . . . (8×3)=24	40
..	.. *liquid.* Sp. gr. 1·85.		1 Dry acid . . . . . =40 1 Water . . . . . = 9	49
..	Sulphurous . .	(Higgins)	1 Sulphur . . . . . =16 2 Oxygen . . . . (8×2)=16	32
..	Tantalic.—See COLUMBIUM.			
..	Telluric.—See TELLURIUM.			
..	Tartaric, *dry* .	(Berzelius)	4 Carbon . . . . (6×4)=24 5 Oxygen . . . . (8×5)=40 2 Hydrogen . . . . . = 2	66
..	.. *crystallized* .	(do.)	1 Dry acid . . . . . =66 1 Water . . . . . = 9	75
..	Tungstic . . .	(Bucholz)	1 Tungsten . . . . . =96 3 Oxygen . . . . (8×3)=24	120
..	Uric, *dry* . .	(Thomson)	6 Carbon . . . . (6×6)=36 2 Nitrogen . . . (14×2)=28 1 Oxygen . . . . . = 8	72
..	.. *crystallized* . .	(do.)	1 Dry acid . . . . . =72 2 Water . . . . (9×2)=18	90

ALUMINA	Thomson and Gay-Lussac	1 Aluminum	=10	18
		1 Oxygen	= 8	
.. Sulphate . .	(Thomson)	1 Alumina	=18	58
		1 Sulphuric acid	=40	
.. Ammonio-sulphate, or Ammoniacal Alum .	(Riffault)	1 Sulphate of Ammonia .	= 57	447
		3 Sulphate of Alumina	(58×3)=174	
		24 Water	(9×24)=216	
.. Potassa-sulphate, or Common Alum .	(Thomson)	1 Sulphate of Potassa . .	= 88	487
		3 Sulphate of Alumina	(58×3)=174	
		25 Water . . .	(9×25)=225	
.. Soda-sulphate, or Soda Alum	(Ure)	1 Bisulphate of Soda . .	=112	580
		2 Sulphate of Alumina	(58×2)=116	
		28 Water	(9×28)=252	
ALUMINUM	(Thomson)		=	10
AMMONIA	(Henry)	3 Hydrogen	= 3	17
		1 Nitrogen	=14	
.. Acetate	(theory)	1 Ammonia	=17	67
		1 Acetic acid	=50	
.. ..	*crystallized* (Thomson)	1 Dry Acetate	=67	130
		7 Water	(9×7)=63	
.. Arsenia e	(do.)	1 Ammonia	=17	79
		1 Arsenic acid	=62	

AMMONIA—

.. .. binarseniate, *crystallized* (Thomson)	1 Ammonia	= 17		
	2 Arsenic acid . .	(62×2)=124		159
	2 Water	(9×2)= 18		
.. Arsenite . . . . (theory)	1 Ammonia	=17		71
	1 Arsenious acid . . .	=54		
.. Benzoate, *crystallized* . . . (Thomson)	1 Ammonia	= 17		
	1 Benzoic acid	=120		146
	1 Water	= 9		
.. Borate, *dry* . . . (theory)	1 Ammonia	=17		41
	1 Boracic acid	=24		
.. .. *crystallized* . . . (Berzelius)	1 Dry Borate	=41		59
	2 Water	(9×2)=18		
.. Carbonate . (Gay-Lussac)	1 Ammonia	=17		39
	1 Carbonic acid	=22		
.. .. bicarbonate . (Berthollet)	1 Ammonia	=17		61
	2 Carbonic acid .	(22×2)=44		
.. .. hydrated bicarbonate . . (Phillips)	1 Bicarbonate of Ammonia .	=61		79
	2 Water	(9×2)=18		
.. .. hydrated sesquicarbonate . (Phillips)	2 Ammonia . . .	(17×2)=34		
	3 Carbonic acid . .	(22×3)=66		118
	2 Water	(9×2)=18		
.. Chlorate . . . (theory)	1 Ammonia	=17		93
	1 Chloric acid	=76		

AMMONIA—				
..	Chlorocarbonate	(J. Davy)	1 Ammonia . . . . . =17 1 Chlorocarbonic acid . . =50	67
..	Chromate	(Thomson)	1 Ammonia . . . . . =17 1 Chromic acid . . . . =52	69
..	.. bichromate	(do.)	1 Ammonia . . . . . = 17 2 Chromic acid . (52×2)=104 2 Water . . . . (9×2)= 18	139
..	Citrate		1 Ammonia . . . . . =17 1 Citric acid . . . . . =58	75
..	Fluoborate, *liquid*	(J. Davy)	1 Ammonia . . . . . =17 1 Fluoboric acid . . . . =24	41
..	.. bifluoborate, *solid*	(do.)	1 Ammonia . . . . . =17 2 Fluoboric acid . (24×2)=48	65
..	Hydriodate	(Gay-Lussac)	1 Ammonia . . . . . = 17 1 Hydriodic acid . . . =126	143
..	Iodate	(do.)	1 Ammonia . . . . . = 17 1 Iodic acid . . . . . =165	182
..	Muriate		1 Ammonia . . . . . =17 1 Muriatic acid . . . . =37	54
..	Nitrate, *dry*	(Berzelius)	1 Ammonia . . . . . =17 1 Nitric acid . . . . . =54	71
..	.. *prismatic*	(do.)	1 Dry Nitrate of Ammonia =71 1 Water . . . . . = 9	80

AMMONIA—

..	Oxalate, *dry*	1 Ammonia . . . . . =17 1 Oxalic acid . . . . . =36	53
..	.. *crystallized* (Thomson)	1 Dry Oxalate of Ammonia =53 2 Water . . . . (9×2)=18	71
..	.. binoxalate, *crystallized*	1 Ammonia . . . . . =17 2 Oxalic acid . . (36×2)=72 8 Water . . . . (9×8)=72	161
..	Phosphate, *anhydrous* (theory)	1 Ammonia . . . . . =17 1 Phosphoric acid . . . =28	45
..	.. *crystallized* (Thomson)	1 Dry Phosphate of Ammonia =45 2 Water . . . . (9×2)=18	63
..	.. biphosphate . . . (do.)	1 Ammonia . . . . . =17 2 Phosphoric acid . (28×2)=56	73
..	Phosphite . . . (theory)	1 Ammonia . . . . . =17 1 Phosphorous acid . . . =20	37
..	.. hypophosphite . . (do.)	1 Ammonia . . . . . =17 1 Hypophosphorous acid . =32	49
..	Saclactate . . . . (do.)	1 Ammonia . . . . . = 17 1 Saclactic acid . . . =105	122
..	Succinate, *anhydrous*	1 Ammonia . . . . . =17 1 Succinic acid . . . . =50	67
..	.. *crystallized* (Thomson)	1 Dry Succinate of Ammonia =67 2 Water . . . . (9×2)=18	85

AMMONIA—

..	Sulphate, *anhydrous* (theory)	1 Ammonia	=17	57
		1 Sulphuric acid	=40	
..	.. *prismatic* (Berzelius)	1 Dry Sulphate of Ammonia	=57	75
		2 Water	(9×2)=18	
..	.. *dried crystals* (Ure)	1 Dry Sulphate	=57	66
		1 Water	= 9	
..	Sulphite, *anhydrous* (theory)	1 Ammonia	=17	49
		1 Sulphurous acid . . .	=32	
..	.. *crystallized* . (do.)	2 Dry Sulphite . .	(49×2)=98	107
		1 Water	= 9	
..	.. binhyposulphite (Herschel)	1 Ammonia	=17	65
		2 Hyposulphurous acid	(24×2)=48	
..	.. tartrate . . (Thomson)	1 Ammonia	=17	83
		1 Tartaric acid	=66	
..	.. potassa-tartrate . (theory)	1 Ammonia	= 17	197
		1 Potassa	= 48	
		2 Tartaric acid .	(66×2)=132	
..	.. bitartrate . . . (do.)	1 Ammonia	= 17	149
		2 Tartaric acid .	(66×2)=132	
..	Tungstate . . . . (do.)	1 Ammonia	= 17	137
		1 Tungstic acid	=120	
..	.. bitungstate . . (Thomson)	1 Ammonia	= 17	275
		2 Tungstic acid .	(120×2)=240	
		2 Water	(9×2)= 18	

AMMONIA—				
.. Urate	(theory)	1 Ammonia . . . . . =17 1 Uric acid . . . . . =72		89
ANTIMONY	(J. Davy)		=	44
.. Chloride	(do.	1 Antimony . . . . . =44 1 Chlorine . . . . . =36		80
.. .. perchloride .	(Thomson)	1 Antimony . . . . . =44 2 Chlorine . . . (36×2)=72		116
.. Iodide	(theory)	1 Antimony . . . . . = 44 1 Iodine . . . . . =125		169
.. Iodo-sulphuret .	{Henry and Garot}	1 Antimony . . . . . = 44 1 Iodine . . . . . =125 1 Sulphur . . . . . = 16		185
.. Protoxide . . .	(J. Davy)	1 Antimony . . . . . =44 1 Oxygen . . . . . = 8		52
.. .. deutoxide, or Antimonious acid . . .	(theory)	1 Antimony . . . . . =44 1½ Oxygen . . . (8×1·5)=12		56
.. .. peroxide, or Antimonic acid	(theory)	1 Antimony . . . . . =44 2 Oxygen . . . . (8×2)=16		60
.. Phosphuret	(do.)	1 Antimony . . . . . =44 1 Phosphorus . . . . =12		56
.. Potassa-tartrate, *crystallized*	(Phillips)	3 Protoxide of Antimony (52×3)=156 2 Tartaric acid . (66×2)=132 1 Potassa . . . . . = 48 3 Water . . . . (9×3)= 27		363

ANTIMONY—

.. Sulphuret . . . (Proust) { 1 Antimony . . . . . =44 ; 1 Sulphur . . . . . =16 } 60

.. .. hydrosulphuret, or Kermes Mineral . . (J. Davy) { 1 Protoxide of Antimony . =52 ; 1 Sulphuretted Hydrogen . =17 } 69

.. Sulphuretted Hydrosulphuret, or Golden Sulphur of Antimony . . . . (theory) { 1 Protoxide of Antimony . =52 ; 1 Bisulphuret of Hydrogen =33 } 85

ARSENIC . . . . . (Thomson) . . . . . = 38

.. Chloride ?

.. Iodide ?

BARIUM . . . . . (Davy) . . . . . = 70

.. Chloride . . . . . (do.) { 1 Barium . . . . . =70 ; 1 Chlorine . . . . . =36 } 106

.. .. *crystallized* (Thomson) { 1 Dry Chloride of Barium =106 ; 2 Water . . . . (9×2)= 18 } 124

.. Iodide . . . . (theory) { 1 Barium . . . . . = 70 ; 1 Iodine . . . . . =125 } 195

.. Oxide *(Baryta)* . . (Davy) { 1 Barium . . . . . =70 ; 1 Oxygen . . . . . = 8 } 78

.. .. peroxide . { Gay-Lussac and Thenard } { 1 Barium . . . . . =70 ; 2 Oxygen . . . . (8×2)=16 } 86

.. Sulphuret . . . (theory) { 1 Barium . . . . . =70 ; 1 Sulphur . . . . . =16 } 86

Barium—				
.. Phosphuret . . .	(theory)	1 Barium . . . . . =70 1 Phosphorus . . . . . =12		82
Baryta—				
.. Acetate	(do.)	1 Baryta . . . . . =78 1 Acetic acid . . . . . =50		128
.. ..	*crystallized* (Thomson)	1 Dry Acetate . . . . =128 3 Water . . . . (9×3)= 27		155
.. .. arseniate .	(Berzelius)	1 Baryta . . . . . =78 1 Arsenic acid . . . . =62		140
.. .. arsenite . . .	(theory)	1 Baryta . . . . . =78 1 Arsenious acid . . . =54		132
.. .. benzoate	(do.)	1 Baryta . . . . . = 78 1 Benzoic acid . . . . =120		198
.. Borate	(do.)	1 Baryta . . . . . =78 1 Boracic acid . . . . =24		102
.. Carbonate . .	Klaproth and Rose	1 Baryta . . . . . =78 1 Carbonic acid . . . . =22		100
.. Chlorate	(theory)	1 Baryta . . . . . =78 1 Chloric acid . . . . =76		154
.. Chromate . .	(Thomson)	1 Baryta . . . . . =78 1 Chromic acid . . . . =52		130
.. Citrate	(theory)	1 Baryta . . . . . =78 1 Citric acid . . . . . =58		136

BARYTA—

..	Columbate, *sesqui* (Thomson)	1 Baryta . . . . . = 78 1½ Columbic acid (152×1·5)=228		306
..	.. hydrate . . . (theory)	1 Baryta . . . . . =78 1 Water . . . . . = 9		87
..	Formiate . . . (Gehlen)	1 Baryta . . . . . =78 1 Formic acid . . . . =37		115
..	Hyposulphite, *bin* (Herschel)	1 Baryta . . . . . =78 2 Hyposulphurous acid (24×2)=48		126
..	Hyposulphate, *dry*	Welter and Gay-Lussac	1 Baryta . . . . . =78 1 Hyposulphuric acid . . =76	154
..	.. *crystallized*	(do.)	1 Dry Hyposulphate . . =154 2 Water . . . . (9×2)= 18	172
..	Iodate . . . (Gay-Lussac)	1 Baryta . . . . . = 78 1 Iodic acid . . . . . =165		243
..	Malate . . . . (theory)	1 Baryta . . . . . =78 1 Malic acid . . . . . =60		138
..	Nitrate, *anhydrous crystals*	(Berzelius)	1 Baryta . . . . . =78 1 Nitric acid . . . . . =54	132
..	Oxalate . . . (Thomson)	1 Baryta . . . . . =78 1 Oxalic acid . . . . . =36 3 Water . . . . (9×3)=27		141

BARYTA—

..	.. binoxalate	(Thomson)	1 Baryta . . . . . =78 2 Oxalic acid . . (36×2)=72 3 Water . . . . (9×3)=27		177
..	.. phosphate	(theory)	1 Baryta . . . . . =78 1 Phosphoric acid . . . =28		106
..	.. biphosphate	(Berzelius)	1 Baryta . . . . . =78 2 Phosphoric acid . (28×2)=56 2 Water . . . . (9×2)=18		152
..	.. phosphite	(do.)	1 Baryta . . . . . =78 1 Phosphorous acid . . . =20 1 Water . . . . . = 9		107
..	.. hypophosphite	(theory)	1 Baryta . . . . . =78 1 Hypophosphorous acid . =32		110
..	Saclactate	(do.)	1 Baryta . . . . . = 78 1 Saclactic acid . . . . =105		183
..	Seleniate	(Berzelius)	1 Baryta . . . . . =78 1 Selenic acid . . . . . =56		134
..	Succinate	(theory)	1 Baryta . . . . . =78 1 Succinic acid . . . . =50		128
..	Sulphate	(do.)	1 Baryta . . . . . =78 1 Sulphuric acid . . . . =40		118
..	Sulphite	(do.)	1 Baryta . . . . . =78 1 Sulphurous acid . . . =32		110
..	Sulphocyanate?				

BARYTA—				
..	Sulphonaphthalate	(Faraday)	1 Baryta . . . . . = 78 1 Sulphonaphthalic acid . =208	286
..	Sulphovinate . .	(Hennell)	1 Baryta . . . . . = 78 1 Sulphovinic acid . . =108	186
..	Tartrate . . .	(Thomson)	1 Baryta . . . . . =78 1 Tartaric acid . . . . =66	144
..	.. bitartrate . . .	(do.)	1 Baryta . . . . . = 78 2 Tartaric acid . (66×2)=132 2 Water . . . . (9×2)= 18	228
..	Tungstate . . .	(theory)	1 Baryta . . . . . = 78 1 Tungstic acid . . . . =120	198
..	Urate?	(do.)	1 Baryta . . . . . =78 1 Uric acid . . . . . =72	150
BISMUTH		(J. Davy)		= 72
..	Oxide . . .	(Lagerhielm)	1 Bismuth . . . . . =72 1 Oxygen . . . . . = 8	80
..	Chloride . . .	(J. Davy)	1 Bismuth . . . . . =72 1 Chlorine . . . . . =36	108
..	Iodide	(theory)	1 Bismuth . . . . . = 72 1 Iodine . . . . . =125	197
	Acetate	(do.)	1 Oxide of Bismuth . . . =80 1 Acetic acid . . . . . =50	130

BISMUTH—

..	Arseniate . .	(Thomson)	1 Oxide of Bismuth . . =80 1 Arsenic acid . . . . =62 2 Water . . . . (9×2)=18		160
..	Arsenite	(theory)	1 Oxide of Bismuth . . . =80 1 Arsenious acid . . . . =54		134
..	Benzoate	(do.)	1 Oxide of Bismuth . . = 80 1 Benzoic acid . . . . =120		200
..	Borate	(do.)	1 Oxide of Bismuth . . . =80 1 Boracic acid . . . . =24		104
..	Carbonate	(do.)	1 Oxide of Bismuth . . . =80 1 Carbonic acid . . . . =22		102
..	ditto . .	(Thomson)	3 Oxide of Bismuth (80×3)=240 1 Carbonic acid . . . = 22 2 Water . . . . (9×2)= 18		280
..	Chlorate	(theory)	1 Oxide of Bismuth . . =80 1 Chloric acid . . . . =76		156
..	Chromate . .	(Thomson)	1 Oxide of Bismuth . . . =80 1 Chromic acid . . . . =52 2 Water . . . . (9×2)=18		150
..	Citrate	(theory)	1 Oxide of Bismuth . . =80 1 Citric acid . . . . . =58		138
..	Iodate	(do.)	1 Oxide of Bismuth . . = 80 1 Iodic acid . . . . . =165		245
..	Molybdate ?				

BISMUTH—

.. Nitrate, *crystallized* (Thomson) { 1 Oxide of Bismuth . . =80 ; 1 Nitric acid . . . . =54 ; 3 Water . . . . (9×3)=27 } 161

.. Subnitrate, *magistery* (theory) { 2 Oxide of Bismuth . 80×2=160 ; 1 Nitric acid . . . . . =54 } 214

.. Oxalate . . . (Thomson) { 1 Oxide of Bismuth . . . =80 ; 1 Oxalic acid . . . . . =36 } 116

.. Phosphate . . . (theory) { 1 Oxide of Bismuth . . =80 ; 1 Phosphoric acid . . . =28 } 108

.. ditto . . . (Thomson) { 1 Anhydrous phosphate . =108 ; 3 Water . . . . (9×3)= 27 } 135

.. Phosphuret . . . . . { 1 Bismuth . . . . . = 72 ; 1 Phosphorus . . . . = 12 } 84

.. Sulphate . . (Lagerhielm) { 1 Oxide of Bismuth . . . =80 ; 1 Sulphuric acid . . . . =40 } 120

.. Subsulphate . . (Berzelius) { 3 Oxide of Bismuth . (80×3)=240 ; 1 Sulphuric acid . . . = 40 } 280

.. Sulphite . . . . (theory) { 1 Oxide of Bismuth . . =80 ; 1 Sulphurous acid . . . =32 } 112

.. Sulphuret . . (Lagerhielm) { 1 Bismuth . . . . . =72 ; 1 Sulphur . . . . . =16 } 88

.. Tartrate . . . . (theory) { 1 Oxide of Bismuth . . . =80 ; 1 Tartaric acid . . . . =66 } 146

BISMUTH—

.. Tartrate . . . (Thomson) { 1 Anhydrous tartrate . . =146 ; 5 Water . . . . (9×5)=45 } 191

CADMIUM . . . . (Stromeyer) . . . . . = 56

.. Oxide . . . . . (do.) { 1 Cadmium . . . . . =56 ; 1 Oxygen . . . . . = 8 } 64

.. Chloride . . . . . (do.) { 1 Cadmium . . . . . =56 ; 1 Chlorine . . . . . =36 } 92

.. Iodide . . . . . (do.) { 1 Cadmium . . . . . = 56 ; 1 Iodine . . . . . =125 } 181

.. Phosphuret . . . . (do.) { 1 Cadmium . . . . . =56 ; 1 Phosphorus . . . . . =12 } 68

.. Sulphuret . . . . (do.) { 1 Cadmium . . . . . =56 ; 1 Sulphur . . . . . =16 } 72

.. Acetate . . . (Thomson) { 1 Oxide of Cadmium . . =64 ; 1 Acetic acid . . . . . =50 ; 2 Water . . . . (9×2)=18 } 132

.. Arseniate . . . (theory) { 1 Oxide of Cadmium . . =64 ; 1 Arsenic acid . . . . =62 } 126

.. Borate . . . . . (do.) { 1 Oxide of Cadmium . . =64 ; 1 Boracic acid . . . . =24 } 88

.. Carbonate . . (Stromeyer) { 1 Oxide of Cadmium . . =64 ; 1 Carbonic acid . . . . =22 } 86

CADMIUM—

.. Chromate . . (Thomson) { 1 Oxide of Cadmium . . =64 ; 1 Chromic acid . . . =52 ; 5 Water . . . . (9×5)=45 } 161

.. Citrate . . . . . (do.) { 1 Oxide of Cadmium . . =64 ; 1 Citric acid . . . . . =58 ; 2 Water . . . . (9×2)=18 } 140

.. Nitrate . . . (Stromeyer) { 1 Oxide of Cadmium . . =64 ; 1 Nitric acid . . . . . =54 ; 4 Water . . . . (9×4)=36 } 154

.. Oxalate . . . (Thomson) { 1 Oxide of Cadmium . . =64 ; 1 Oxalic acid . . . . . =36 ; 3 Water . . . . (9×3)=27 } 127

.. Phosphate . . (Stromeyer) { 1 Oxide of Cadmium . . =64 ; 1 Phosphoric acid . . . =28 } 92

.. Sulphate, *dry* . . . (do.) { 1 Oxide of Cadmium . . =64 ; 1 Sulphuric acid . . . . =40 } 104

.. .. *crystallized* . . (do.) { 1 Dry Sulphate of Cadmium =104 ; 4 Water . . . . (9×4)= 36 } 140

.. Tartrate, *crystallized* . . (Thomson) { 1 Oxide of Cadmium . . =64 ; 1 Tartaric acid . . . . =66 ; 2 Water . . . . (9×2)=18 } 148

CALCIUM . . . . . (Berzelius) . . . . . = 20

.. Oxide, (see LIME.)

.. Chloride . . . (Berzelius) { 1 Calcium . . . . . =20 ; 1 Chlorine . . . . . =36 } 56

CALCIUM—				
.. Fluoride	(Davy)	1 Calcium	=20	36
		1 Fluorine	=16	
.. Iodide	(theory)	1 Calcium	= 20	145
		1 Iodine	=125	
.. Phosphuret . . .	(theory)	1 Calcium	=20	32
		1 Phosphorus	=12	
CARBON	(Gay-Lussac)		=	6
.. Perchloride . .	(Faraday)	2 Carbon	(6×2)= 12	120
		3 Chlorine . . .	(36×3)=108	
.. Protochloride . . .	(do.)	1 Carbon	= 6	42
		1 Chlorine	=36	
.. Subchloride .	Phillips and Faraday	2 Carbon	(6×2)=12	48
		1 Chlorine	=36	
.. Hydriodide . .	(Faraday)	2 Carbon	(6×2)= 12	139
		2 Hydrogen	= 2	
		1 Iodine	=125	
.. Hydrochloride . . .	(do.)	2 Carbon	(6×2)=12	50
		2 Hydrogen	= 2	
		1 Chlorine	=36	
.. Oxide . . .	(Gay-Lussac)	1 Carbon	= 6	14
		1 Oxygen	= 8	
.. Sulphuret . .	(Berthollet)	1 Carbon	= 6	38
		2 Sulphur	(16×2)=32	

CARBON—

.. Carburetted Hydrogen, or Olefiant Gas . . (Davy)
1 Carbon . . . . . = 6
1 Hydrogen . . . . . = 1
7
OR:
2 Carbon . . . . (6×2)=12
2 Hydrogen . . . . . = 2
14

.. Carburetted Hydrogen of Mines . . . . . (do.)
1 Carbon . . . . . = 6
2 Hydrogen . . . . . = 2
8

.. Crystallizable Bicarburet of Hydrogen . . (Faraday)
6 Carbon . . . . (6×6)=36
3 Hydrogen . . . . = 3
39

.. Carburetted Hydrogen (Volatile Liquid, forming a dense Vapour) . . . . (do.)
4 Carbon . . . . . =24
4 Hydrogen . . . . . = 4
28

CHLORINE . . . . . (Prout) . . . . . = 36

.. Hydrate, *crystallized* . . (Faraday)
1 Chlorine . . . . . =36
10 Water . . . (9×10)=90
126

.. Oxide of . . . . (Davy)
1 Chlorine . . . . . =36
4 Oxygen . . . . (8×4)=32
68

CHROMIUM . . . . (Berzelius) . . . . . = 28

.. Protoxide . . (Thomson)
1 Chromium . . . . . =28
1 Oxygen . . . . . = 8
36

.. .. *hydrated* . . . (do.)
1 Protoxide of Chromium . = 36
26 Water . . . (9×26)=234
270

.. .. deutoxide . . . (do.)
1 Chromium . . . . . =28
2 Oxygen . . . . . =16
44

.. .. peroxide.—See ACID, Chromic.

BISMUTH—

..	Arseniate . .	(Thomson)	1 Oxide of Bismuth . . =80 1 Arsenic acid . . . . =62 2 Water . . . . (9×2)=18	160
..	Arsenite	(theory)	1 Oxide of Bismuth . . . =80 1 Arsenious acid . . . . =54	134
..	Benzoate	(do.)	1 Oxide of Bismuth . . = 80 1 Benzoic acid . . . . =120	200
..	Borate	(do.)	1 Oxide of Bismuth . . . =80 1 Boracic acid . . . . =24	104
..	Carbonate	(do.)	1 Oxide of Bismuth . . . =80 1 Carbonic acid . . . . =22	102
..	ditto . .	(Thomson)	3 Oxide of Bismuth (80×3)=240 1 Carbonic acid . . . = 22¦ 2 Water . . . . (9×2)= 18	280
..	Chlorate	(theory)	1 Oxide of Bismuth . . =80 1 Chloric acid . . . . =76	156
..	Chromate . .	(Thomson)	1 Oxide of Bismuth . . . =80 1 Chromic acid . . . . =52 2 Water . . . . (9×2)=18	150
..	Citrate	(theory)	1 Oxide of Bismuth . . =80 1 Citric acid . . . . . =58	138
..	Iodate	(do.)	1 Oxide of Bismuth . . = 80 1 Iodic acid . . . . . =165	245
..	Molybdate ?			

BISMUTH—

.. Nitrate, *crystallized* (Thomson) { 1 Oxide of Bismuth . . =80 ; 1 Nitric acid . . . . =54 ; 3 Water . . . . (9×3)=27 } 161

.. Subnitrate, *magistery* (theory) { 2 Oxide of Bismuth . 80×2=160 ; 1 Nitric acid . . . . . =54 } 214

.. Oxalate . . . (Thomson) { 1 Oxide of Bismuth . . . =80 ; 1 Oxalic acid . . . . . =36 } 116

.. Phosphate . . . (theory) { 1 Oxide of Bismuth . . =80 ; 1 Phosphoric acid . . . =28 } 108

.. ditto . . . (Thomson) { 1 Anhydrous phosphate . =108 ; 3 Water . . . . (9×3)= 27 } 135

.. Phosphuret . . . . . { 1 Bismuth . . . . . = 72 ; 1 Phosphorus . . . . = 12 } 84

.. Sulphate . . (Lagerhielm) { 1 Oxide of Bismuth . . . =80 ; 1 Sulphuric acid . . . . =40 } 120

.. Subsulphate . . (Berzelius) { 3 Oxide of Bismuth . (80×3)=240 ; 1 Sulphuric acid . . . = 40 } 280

.. Sulphite . . . . (theory) { 1 Oxide of Bismuth . . =80 ; 1 Sulphurous acid . . . =32 } 112

.. Sulphuret . . (Lagerhielm) { 1 Bismuth . . . . . =72 ; 1 Sulphur . . . . . =16 } 88

.. Tartrate . . . . (theory) { 1 Oxide of Bismuth . . . =80 ; 1 Tartaric acid . . . . =66 } 146

BISMUTH—

.. Tartrate . . . (Thomson) { 1 Anhydrous tartrate . . =146 ; 5 Water . . . . (9×5)=45 } 191

CADMIUM . . . . (Stromeyer) . . . . . = 56

.. Oxide . . . . . (do.) { 1 Cadmium . . . . . =56 ; 1 Oxygen . . . . . = 8 } 64

.. Chloride . . . . . (do.) { 1 Cadmium . . . . . =56 ; 1 Chlorine . . . . . =36 } 92

.. Iodide . . . . . (do.) { 1 Cadmium . . . . . = 56 ; 1 Iodine . . . . . =125 } 181

.. Phosphuret . . . . (do.) { 1 Cadmium . . . . . =56 ; 1 Phosphorus . . . . . =12 } 68

.. Sulphuret . . . . (do.) { 1 Cadmium . . . . . =56 ; 1 Sulphur . . . . . =16 } 72

.. Acetate . . . (Thomson) { 1 Oxide of Cadmium . . =64 ; 1 Acetic acid . . . . . =50 ; 2 Water . . . . (9×2)=18 } 132

.. Arseniate . . . (theory) { 1 Oxide of Cadmium . . =64 ; 1 Arsenic acid . . . . =62 } 126

.. Borate . . . . . (do.) { 1 Oxide of Cadmium . . =64 ; 1 Boracic acid . . . . =24 } 88

.. Carbonate . . (Stromeyer) { 1 Oxide of Cadmium . . =64 ; 1 Carbonic acid . . . . =22 } 86

CADMIUM—

..	Chromate . .	(Thomson)	1 Oxide of Cadmium . . =64 1 Chromic acid . . . =52 5 Water . . . . (9×5)=45	161
..	Citrate	(do.)	1 Oxide of Cadmium . . =64 1 Citric acid . . . . . =58 2 Water . . . . (9×2)=18	140
..	Nitrate . . .	(Stromeyer)	1 Oxide of Cadmium . . =64 1 Nitric acid . . . . . =54 4 Water . . . . (9×4)=36	154
..	Oxalate . . .	(Thomson)	1 Oxide of Cadmium . . =64 1 Oxalic acid . . . . . =36 3 Water . . . . (9×3)=27	127
..	Phosphate . .	(Stromeyer)	1 Oxide of Cadmium . . =64 1 Phosphoric acid . . . =28	92
..	Sulphate, *dry* . . .	(do.)	1 Oxide of Cadmium . . =64 1 Sulphuric acid . . . . =40	104
..	.. *crystallized* . .	(do.)	1 Dry Sulphate of Cadmium =104 4 Water . . . . (9×4)= 36	140
..	Tartrate, *crystallized* . .	(Thomson)	1 Oxide of Cadmium . . =64 1 Tartaric acid . . . . =66 2 Water . . . . (9×2)=18	148

CALCIUM . . . . . (Berzelius) . . . . . = 20

.. Oxide, (see LIME.)

..	Chloride . . .	(Berzelius)	1 Calcium . . . . . =20 1 Chlorine . . . . . =36	56

COPPER—

..	Arseniate	(theory)	1 Peroxide of Copper . . = 80 2 Arsenic acid . . (62×2)=124	204
..	Subcarbonate, *dry* . .	(do.)	1 Peroxide of Copper . . =80 1 Carbonic acid . . . . =22	102
..	..	*hydrated* (Phillips)	1 Anhydrous Subcarbonate =102 1 Water . . . . . = 9	111
..	Nitrate, *anhydrous*		1 Peroxide of Copper . . = 80 2 Nitric acid . . (54×2)=108	188
..	Oxalate	(theory)	1 Peroxide of Copper . . =80 2 Oxalic acid . . (36×2)=72	152
..	..	potassa-oxalate prismatic (Vogel)	1 Oxalate of Copper . . =152 2 Oxalate of Potassa (84×2)=168 8 Water . . . . (9×8)= 72	392
..	..	do. rhombic . . (do.)	1 Oxalate of Copper . . =152 2 Oxalate of Potassa (84×2)=168 2 Water . . . . (9×2)= 18	338
..	Phosphate, *anhydrous*	(theory)	1 Peroxide of Copper . . =80 2 Phosphoric acid . (28×2)=56	136
..	Subphosphate, *native hydrated*	(Lunn)	1 Peroxide of Copper . . =80 1 Phosphoric acid . . . =28 2 Water . . . . . (9×2)=18	126
..	Sulphate, *anhydrous* . . .	(Berzelius)	1 Peroxide of Copper . . =80 2 Sulphuric acid . . (40×2)=80	160

COPPER—

.. Sulphate, *crystallized* (Proust) { 1 Anhydrous Sulphate . . =160 ; 10 Water . . . (9×10)= 90 } 250

.. .. ammonio-sulphate, *crystallized* . (Thomson) { 1 Sulphate of Copper . . =160 ; 1 Sulphate of Ammonia . = 56 ; 6 Water . . . . (9×6)= 54 } 270

.. .. potassa-sulphate, *crystallized* . . . (Vogel) { 1 Sulphate of Copper . . =160 ; 1 Sulphate of Potassa . . = 88 ; 6 Water . . . . . (9×6)=54 } 202

CYANOGEN . . . (Gay-Lussac) { 1 Nitrogen . . . . . =14 ; 2 Carbon . . . . (6×2)=12 } 26

FLUORINE . . . . . (Davy) . . . . . = 16

GLUCINUM . . . . (Berzelius) . . . . . = 18

GLUCINA . . . . . (do.) { 1 Glucinum . . . . . =18 ; 1 Oxygen . . . . . = 8 } 26

GOLD . . . . . (Pelletier) . . . . . = 200

.. protoxide . . . . . (do.) { 1 Gold . . . . . =200 ; 1 Oxygen . . . . . = 8 } 208

.. peroxide . . . . . (do.) { 1 Gold . . . . . =200 ; 3 Oxygen . . . . . = 24 } 224

.. Chloride . . . . (theory) { 1 Gold . . . . . =200 ; 1 Chlorine . . . . . = 36 } 236

.. Chloride of Gold and Sodium { 1 Chloride of Gold . . =236 ; 1 Chloride of Sodium . . = 60 } 296

GOLD—				
..	Chloride of Gold and Sodium, *crystallized*	1 Anhydrous Salt . . . = 296 8 Water . . . . (9×8) = 72		368
..	Iodide . . . . (Pelletier)	1 Gold . . . . . = 200 1 Iodine . . . . . = 125		325
..	Sulphuret . . . . (do.)	1 Gold . . . . . = 200 3 Sulphur . . . (16×3) = 48		248
HYDROGEN . . . . . (Prout) . . . . . =				1
IODINE . . . . . (do.) . . . . . =				125
IRON . . . . . =				28
..	protoxide . . (Gay-Lussac)	1 Iron . . . . . = 28 1 Oxygen . . . . . = 8		36
..	peroxide . . . . . (do.)	1 Iron . . . . . = 28 1½ Oxygen . . . (8×1·5) = 12		40
..	protochloride . . (J. Davy)	1 Iron . . . . . = 28 1 Chlorine . . . . . = 36		64
..	perchloride . . . (do.)	1 Iron . . . . . = 28 1½ Chlorine . . . (36×1·5) = 54		82
..	Iodide . . . . . (theory)	1 Iron . . . . . = 28 1 Iodine . . . . . = 125		153
..	Sulphuret . . . (Hatchett)	1 Iron . . . . . = 28 1 Sulphur . . . . . = 16		44
..	bisulphuret . . . (do.)	1 Iron . . . . . = 28 2 Sulphur . . . . . = 32		60

IRON—				
..	phosphuret . . .	(theory)	1 Iron . . . . . =28 1 Phosphorus . . . . =12	40
..	protacetate, *anhydrous* .	(do.)	1 Protoxide of Iron . . =36 1 Acetic acid . . . . . =50	86
..	peracetate, *do.* . . .	(do.)	1 Peroxide of Iron . . . =40 1½ Acetic acid . (50×1·5)=75	115
..	Protocarbonate . . .	(do.)	1 Protoxide . . . . . =36 1 Carbonic acid . . . . =22	58
	Percarbonate . . .	(do.)	1 Peroxide . . . . . =40 1½ Carbonic acid . (22×1·5)=33	73
..	Protomuriate	(do.)	1 Protoxide . . . . . =36 1 Muriatic acid . . . . =37	73
..	Permuriate	(do.)	1 Peroxide . . . . . =40 1½ Muriatic acid . (37×1·5)=55	95
..	ammonia-permuriate, *crystallized* . . .	(Thomson)	1 Permuriate of Iron . . =95 1 Muriate of Ammonia . . =54	149
..	protonitrate, *anhydrous* . .	(theory)	1 Protoxide . . . . . =36 1 Nitric acid . . . . . =54	90
..	.. *crystallized*	(Thomson)	1 Anhydrous Protonitrate . =90 7 Water . . . . . (9×7)=63	153
..	pernitrate, *anhydrous*	(theory)	1 Peroxide . . . . . =40 1½ Nitric acid . . (54×1·5)=81	121

IRON—				
..	pernitrate, *crystallized* (Thomson)	1 Anhydrous pernitrate . =121 8 Water . . . . . (9×8)=72		193
..	protoxalate . . (Thomson)	1 Protoxide . . . . . =36 1 Oxalic acid . . . . . =36 2 Water . . . . (9×2)=18		90
..	protophosphate, *anhydrous* .	1 Protoxide of Iron . . . =36 1 Phosphoric acid . . . =28		64
..	.. *crystallized* (Klaproth)	1 Anhydrous phosphate . =64 2 Water . . . . (9×2)=18		82
..	perphosphate . . (theory)	1 Peroxide . . . . . =40 1½ Phosphoric acid (28×1·5)=42		82
..	protosulphate, *anhydrous* . (Berzelius)	1 Protoxide . . . . . =36 1 Sulphuric acid . . . . =40		76
..	.. *crystallized* (do.)	1 Anhydrous sulphate . . =76 7 Water . . . . (9×7)=63		139
..	persulphate . . . . (do.)	1 Peroxide . . . . . =40 1½ Sulphurous acid . (40×1·5)=60		100
..	.. ammonio-persulphate, *crystallized* . (Thomson)	2 Persulphate of Iron (100×2)=200 1 Sulphate of Ammonia . = 56 25 Water . . . (9×25)=225		481
..	Potassa-protosulphate, *crystallized* . . . . (do.)	3 Protosulphate of Iron . . =76 1 Sulphate of Potassa . . =88 5 Water . . . . (9×5)=45		209

IRON—

..	.. potassa-persulphate, *crystallized* . .	(Thomson)	2 Persulphate of Iron (100×2)= 200 1 Sulphate of Potassa . . = 88 25 Water . . . (9×25)=225	513
..	protosulphite . .	(theory)	1 Protoxide . . . . . =36 1 Sulphurous acid . . . =32	68
..	prototartrate		1 Protoxide . . . . . =36 1 Tartaric acid . . . . =66	102
..	.. *crystallized*	(Thomson)	1 Anhydrous Tartrate . . =102 2 Water . . . . (9×2)= 18	120

LEAD . . . . . (Berzelius) . . . . . = 104

..	protoxide	(do.)	1 Lead . . . . . =104 1 Oxygen . . . . . = 8	112
..	deutoxide	(do.)	1 Lead . . . . . =104 1½ Oxygen . . . (8×1·5)= 12	116
..	peroxide	(do.)	1 Lead . . . . . =104 2 Oxygen . . . . (8×2)= 16	120
..	Chloride . . .	(J. Davy)	1 Lead . . . . . =104 1 Chlorine . . . . . =36	140
..	Iodide	(theory)	1 Lead . . . . . =104 1 Iodine . . . . . =125	229
..	Sulphuret		1 Lead . . . . . =104 1 Sulphur . . . . . = 16	120

LEAD—

..	Phosphuret	1 Lead	=104	116
		1 Phosphorus	= 12	
..	Acetate . . . . (theory)	1 Protoxide of Lead . .	=112	162
		1 Acetic acid	= 50	
..	.. *crystallized* (Berzelius)	1 Anhydrous acetate . .	=162	189
		3 Water	(9×3)= 27	
..	.. subacetate . . . (do.)	3 Protoxide . .	(112×3)=336	386
		1 Acetic acid	= 50	
..	Arsenite . . . . (theory)	1 Protoxide	=112	166
		1 Arsenious acid . . .	= 54	
..	Arseniate . . (Chenevix)	1 Protoxide	=112	174
		1 Arsenic acid	= 62	
..	Benzoate, *anhydrous* (theory)	1 Protoxide	=112	232
		1 Benzoic acid	=120	
..	.. *crystallized* . . (Berzelius)	1 Anhydrous Benzoate .	=232	241
		1 Water	= 9	
..	Borate . . . . (theory)	1 Protoxide	=112	136
		1 Boracic acid	= 24	
..	Carbonate . . . (Berzelius)	1 Protoxide	=112	134
		1 Carbonic acid	= 22	
..	Chlorate . . . (theory)	1 Protoxide	=112	188
		1 Chloric acid	= 76	

LEAD—				
..	Chromate . .	(Vauquelin)	1 Protoxide . . . . . =112 1 Chromic acid . . . . = 52	164
..	.. subchromate .	(Badams)	2 Protoxide . . (112×2)=224 1 Chromic acid . . . . = 52	276
..	Citrate . . .	(Berzelius)	1 Protoxide . . . . . =112 1 Citric acid . . . . . = 58	170
..	Formiate	(do.)	1 Protoxide . . . . . =112 1 Formic acid . . . . = 37	149
..	Gallate	(do.)	1 Protoxide . . . . . =112 1 Gallic acid . . . . . = 63	175
..	Hyponitrite . . .	(do.)	1 Protoxide of Lead . . =112 1 hyponitrous acid . . . = 38 1 Water . . . . . = 9	159
..	Hyposulphite .	(Herschel)	1 Protoxide . . . . . =112 2 hyposulphurous acid (24×2)= 48	160
..	Iodate	(theory)	1 Protoxide . . . . . =112 1 Iodic acid . . . . . =165	277
..	Malate . . .	(Vauquelin)	1 Protoxide . . . . . =112 1 Malic acid . . . . . = 60	172
..	Molybdate . .	(Hatchett)	1 Protoxide . . . . . =112 1 Molybdic acid . . . . . = 72	184
..	Nitrate . . .	(Berzelius)	1 Protoxide . . . . . =112 1 Nitric acid . . . . . = 54	166

LEAD—				
.. ..	subnitrate .	(Berzelius)	2 Protoxide . . (112×2)=224 1 Nitric acid . . . . . = 54	278
..	Oxalate	(do.)	1 Protoxide . . . . . =112 1 Oxalic acid . . . . . = 36	148
..	Phosphate . . .	(theory)	1 Protoxide . . . . . =112 1 Phosphoric acid . . . = 28	140
..	Phosphite . . .	(Berzelius)	1 Protoxide . . . . . =112 1 Phosphorous acid . . = 20	132
..	Saclactate	(do.)	1 Protoxide . . . . . =112 1 Saclactic acid . . . . =105	217
..	Succinate	(do.)	1 Protoxide . . . . . =112 1 Succinic acid . . . . = 50	162
..	Sulphovinate . .	(Hennell)	1 Protoxide . . . . . =112 1 Sulphovinic acid . . . =108	220
..	Sulphate . . .	(Berzelius)	1 Protoxide . . . . . =112 1 Sulphuric acid . . . . = 40	152
..	Sulphite . . . ,	(Henry)	1 Protoxide . . . . . =112 1 Sulphurous acid . . . = 32	144
..	Tartrate . . .	(Berzelius)	1 Protoxide . . . . =112 1 Tartaric acid . . . . = 66	178
..	bitungstate	(do.)	1 Protoxide . . . . . =112 2 Tungstic acid . (120×2)=240	352

Lime	(Berzelius)	1 Calcium	=20	28
		1 Oxygen	= 8	
.. hydrate	(do.)	1 Lime	=28	37
		1 Water	= 9	
.. Acetate, *anhydrous* .	(theory)	1 Lime	=28	78
		1 Acetic acid	=50	
.. .. *crystallized* . . .	(Thomson)	1 Anhydrous Acetate . .	=78	132
		6 Water	(9×6)=54	
.. Arseniate	(theory)	1 Lime	=28	90
		1 Arsenic acid	=62	
.. Arsenite	(do.)	1 Lime	=28	82
		1 Arsenious acid . . .	=54	
.. Benzoate	(do.)	1 Lime	= 28	148
		1 Benzoic acid	=120	
.. Borate	(do.)	1 Lime	=28	52
		1 Boracic acid	=24	
.. Carbonate	(do.)	1 Lime	=28	50
		1 Carbonic acid	=22	
.. .. magnesian-carbonate, *Dolomite* . .	(Thomson)	1 Carbonate of Lime . .	=50	92
		1 Carbonate of Magnesia .	=42	
.. .. ditto, *rhombspar* . .	(Klaproth)	2 Carbonate of Lime	(50×2)=100	142
		1 Carbonate of Magnesia .	= 42	
.. Chlorate . . .	(theory)	1 Lime	=28	104
		1 Chloric acid	=76	

LIME—

..	Chromate . . .	(Thomson)	1 Lime . . . . . =28 1 Chromic acid . . . . =52		80
..	Citrate . . .	Gay-Lussac and Thenard	1 Lime . . . . . =28 1 Citric acid . . . . . =58		86
..	Gallate	(theory)	1 Lime . . . . . =28 1 Gallic acid . . . . . =63		91
..	Hydrosulphate ?				
..	Hydriodate ?				
..	Hypophosphite . .	(theory)	1 Lime . . . . . =28 1 Hypophosphorous acid . =32		60
..	Hyposulphate . . .	(do.)	1 Lime . . . . . =28 1 Hyposulphuric acid . . =72		100
..	Hyposulphite . . .	(do.)	1 Lime . . . . . =28 2 Hyposulphurous acid (24×2)=48		76
..	.. *crystallized*	(Herschel)	1 Anhydrous Hyposulphite . =76 6 Water . . . . (9×6)=54		130
..	Iodate	(theory)	1 Lime . . . . . = 28 1 Iodic acid . . . . . =165		193
..	Malate . . .	(Vauquelin)	1 Lime . . . . . =28 1 Malic acid . . . . . =60		88
..	Nitrate, *dry* . .	(Phillips)	1 Lime . . . . . =28 1 Nitric acid . . . . . =54		82

LIME—				
..	Nitrate, *crystallized* (Thomson)	1 Anhydrous Nitrate	=82	109
		3 Water	(9×3)=27	
..	.. *crystallized in vacuo* (do.)	1 Anhydrous Nitrate	=82	136
		6 Water	(9×6)=54	
..	Oxalate, *dry* (theory)	1 Lime	=28	64
		1 Oxalic acid	=36	
..	.. *dried at* 100° (Thomson)	1 Anhydrous Oxalate	=64	82
		2 Water	(9×2)=18	
..	Phosphate (Dalton)	1 Lime	=28	56
		1 Phosphoric acid	=28	
..	Phosphite (theory)	1 Lime	=28	48
		1 Phosphorous acid	=20	
..	Saclactate (theory)	1 Lime	=28	133
		1 Saclactic acid	=105	
..	Seleniate (Berzelius)	1 Lime	=28	84
		1 Selenic acid	=56	
..	Succinate (theory)	1 Lime	=28	78
		1 Succinic acid	=50	
..	Sulphate, *dry* (Henry)	1 Lime	=28	68
		1 Sulphuric acid	=40	
..	.. *crystallized* (do.)	1 Anhydrous Sulphate	=68	86
		2 Water	(9×2)=18	

LIME—				
.. ..	soda-sulphate, *Glauberite* (Brogniart)	1 Sulphate of Lime . . .	=68	140
		1 Sulphate of Soda . . .	=72	
..	Sulphite . . . . (theory)	1 Lime	=28	60
		1 Sulphurous acid . . .	=32	
..	Tartrate, *anhydrous* . (do.)	1 Lime	=28	94
		1 Tartaric acid	=66	
.. ..	*dried at* 70° . . (Berzelius)	1 Anhydrous Tartrate . .	=94	130
		4 Water	(9×4)=36	
..	Tungstate . . . (theory)	1 Lime	= 28	148
		1 Tungstic acid	=120	
LITHIA	(Stromeyer)	1 Lithium	=10	18
		1 Oxygen	= 8	
..	Carbonate . . . (theory)	1 Lithia	=18	40
		1 Carbonic acid	=22	
..	Nitrate . . . . (do.)	1 Lithia	=18	72
		1 Nitric acid	=54	
..	Phosphate . . (Stromeyer)	1 Lithia	=18	46
		1 Phosphoric acid . . .	=28	
..	Sulphate, *dry* . . . (do.)	1 Lithia	=18	58
		1 Sulphuric acid	=40	
.. ..	*crystallized* . (do.)	1 Anhydrous Sulphate . .	=58	67
		1 Water	= 9	

LITHIUM	(Stromeyer)	=		10
.. Oxide, (see LITHIA.)				
.. Chloride	(theory)	1 Lithium	=10	46
		1 Chlorine	=36	
.. Iodide	(do.)	1 Lithium	= 10	135
		1 Iodine	=125	
.. Phosphuret	(do.)	1 Lithium	=10	22
		1 Phosphorus	=12	
.. Sulphuret	(do.)	1 Lithium	=10	26
		1 Sulphur	=16	
MAGNESIA	(theory)	1 Magnesium	=12	20
		1 Oxygen	= 8	
.. Hydrate, *native* . .	(Fyfe)	1 Magnesia	=20	28
		1 Water	= 8	
.. Acetate . . .	(Richter)	1 Magnesia	=20	70
		1 Acetic acid	=50	
.. ..	*crystallized in vacuo* (Thomson)	1 Anhydrous acetate . . .	=70	115
		5 Water	(9×5)=45	
.. Arsenite	(theory)	1 Magnesia	=20	74
		1 Arsenious acid . . .	=54	
.. Arseniate	(do.)	1 Magnesia	=20	82
		1 Arsenic acid	=62	

MAGNESIA—				
..	Arseniate, *crystallized* (Thomson)	1 Anhydrous Arseniate	= 82	154
		8 Water	(9×8)=72	
..	Benzoate (theory)	1 Magnesia	= 20	140
		1 Benzoic acid	=120	
..	Borate (do.)	1 Magnesia	=20	44
		1 Boracic acid	=24	
..	.. Biborate, *Boracite* (Thomson)	1 Magnesia	=20	68
		2 Boracic acid	(24×2)=48	
..	Carbonate, *native* (Babington)	1 Magnesia	=20	42
		1 Carbonic acid	=22	
..	.. Potassa-carbonate, *crystallized* (Thomson)	2 Carbonate of Magnesia	(42×2)=84	257
		1 Bicarbonate of Potassa	=92	
		9 Water	(9×9)=81	
..	Chlorate (theory)	1 Magnesia	=20	96
		1 Chloric acid	=76	
..	Chromate (do.)	1 Magnesia	=20	72
		1 Chromic acid	=52	
..	.. *crystallized* (Thomson)	1 Anhydrous Chromate	=72	90
		2 Water	(9×2)=18	
..	Citrate (theory)	1 Magnesia	=20	78
		1 Citric acid	=58	
..	Hyposulphite (do.)	1 Magnesia	=20	68
		2 Hyposulphurous acid	(24×2)=48	

MAGNESIA—

..	Iodate	(theory)	1 Magnesia . . . . . = 20 1 Iodic acid . . . . . = 165	185
..	Malate	(do.)	1 Magnesia . . . . . = 20 1 Malic acid . . . . . = 60	80
..	Muriate, *anhydrous* . .	(do.)	1 Magnesia . . . . . = 20 1 Muriatic acid . . . . = 37	57
..	.. *crystallized* .	(Henry)	1 dry Muriate . . . . = 57 5 Water . . . . . (9×5) = 45	102
..	Nitrate, *anhydrous* .	(theory)	1 Magnesia . . . . . = 20 1 Nitric acid . . . . = 54	74
..	.. *crystallized*	(Thomson)	1 Anhydrous Nitrate . . . = 74 6 Water . . . . (9×6) = 54	128
..	Oxalate . . .	(Bergman)	1 Magnesia . . . . . = 20 1 Oxalic acid . . . . . = 36	56
..	Phosphate, *anhydrous*	(theory)	1 Magnesia . . . . . = 20 1 Phosphoric acid . . . = 28	48
..	.. *crystallized* . .	(Thomson)	1 Anhydrous phosphate . = 48 7 Water . . . . . (9×7) = 63	111
..	.. Ammonio-phosphate, *dried without heat* .	(Thomson)	1 Phosphate of Magnesia . = 48 1 Phosphate of Ammonia . = 45 4 Water . . . . (9×4) = 36	129
..	Phosphite . . .	(theory)	1 Magnesia . . . . . = 20 1 Phosphorous acid . . . = 20	40

MAGNESIA—			
..	Sulphate, *anhydrous* (Berzelius)	1 Magnesia . . . . . =20 1 Sulphuric acid . . . . =40	60
..	.. *crystallized* (Wenzel)	1 Anhydrous sulphate . . =60 7 Water . . . . (9×7)=63	123
..	.. Ammonio-sulphate, *crystallized* (Thomson)	1 Sulphate of Magnesia . =60 1 Sulphate of Ammonia . . =56 7 Water . . . . (9×7)=63	179
..	.. Potassa-sulphate, *crystallized* (do.)	1 Sulphate of Magnesia . . =60 1 Sulphate of Potassa . . =88 7 Water . . . . . (9×7)=63	211
..	Tartrate, *anhydrous* (theory)	1 Magnesia . . . . . =20 1 Tartaric acid . . . . =66	86
MAGNESIUM . . . . . (theory) . . . . . =			12
..	Oxide . . . . . (do.)	1 Magnesium . . . . . =12 1 Oxygen . . . . . = 8	20
..	Chloride . . . . . (do.)	1 Magnesium . . . . . =12 1 Chlorine . . . . . =36	48
..	Iodide . . . . . (do.)	1 Magnesium . . . . . = 12 1 Iodine . . . . . =125	137
..	Phosphuret . . . . (do.)	1 Magnesium . . . . . =12 1 Phosphorus . . . . =12	24
..	Sulphuret . . . . (do.)	1 Magnesium . . . . . =12 1 Sulphur . . . . . =16	28

MANGANESE . . .	(Forchammer)	=		28
.. Protoxide . . .	(do.)	1 Manganese	=28	36
		1 Oxygen	= 8	
.. Deutoxide . . .	(do.)	1 Manganese	=28	40
		1½ Oxygen . . .	(8×1·5)=12	
.. Peroxide . . .	(do.)	1 Manganese	=28	44
		2 Oxygen	(8×2)=16	
.. Chloride . . .	(J. Davy)	1 Manganese	=28	64
		1 Chlorine	=36	
.. Iodide	(theory)	1 Manganese	= 28	153
		1 Iodine	=125	
.. Phosphuret . . .	(do.)	1 Manganese	=28	40
		1 Phosphorus	=12	
.. Sulphuret . . .	(Berthier)	1 Manganese	=28	44
		1 Sulphur	=16	
.. Sulphuretted Protoxide . .	(Arfwedson)	1 Sulphuret of Manganese .	=44	80
		1 Protoxide of do. . . .	=36	
.. Acetate, *crystallized* .	(John)	1 Protoxide	=36	122
		1 Acetic acid	=50	
		4 Water	(9×4)=36	
.. Arseniate, *anhydrous*	(theory)	1 Protoxide	=36	98
		1 Arsenic acid	=62	

MANGANESE—

..	Arsenite	(theory)	1 Protoxide . . . . . =36 1 Arsenious acid . . . = 54	90
..	Benzoate	(John)	1 Protoxide . . . . . = 36 1 Benzoic acid . . . . =120	156
..	Carbonate .	(Forchammer)	1 Protoxide . . . . . =36 1 Carbonic acid . . . . =22 1 Water . . . . . = 9	67
..	Nitrate, *crystallized*	(Thomson)	1 Protoxide . . . . . =36 1 Nitric acid . . . . =54 7 Water . . . . (9×7)=63	153
..	Oxalate, *dry* . . .	(theory)	1 Protoxide . . . . . =36 1 Oxalic acid . . . . . =36	72
..	.. *hydrated*	(Thomson)	1 Anhydrous Oxalate . . =72 3 Water . . . . (9×3)=27	99
..	Phosphate . . .	(theory)	1 Protoxide . . . . . =36 1 Phosphoric acid . . . =28	64
..	Sulphate, *anhydrous* .	(do.)	1 Protoxide . . . . . =36 1 Sulphuric acid . . . . =40	76
..	.. *crystallized*	(John)	1 Anhydrous sulphate . . =76 5 Water . . . . (9×5)=45	121
..	.. ammonio-sulphate, *crystallized* . .	(Thomson)	1 Sulphate of Manganese . =76 1 Sulphate of Ammonia . =56 7 Water . . . . (9×7)=63	195

MANGANESE—

..	.. Potassa-sulphate, *crystallized* . . .	(Thomson)	1 Sulphate of Manganese . =76 1 Sulphate of Potassa . . =88 5 Water . . . . (9×5)=45	209
..	Tartrate, *crystallized* .	(do.)	1 Protoxide . . . . . =36 1 Tartaric acid . . . . =66 2 Water . . . . (9×2)=18	120
MERCURY		(Davy)	. . . . . =	200
..	Protoxide	(do.)	1 Mercury . . . . . =200 1 Oxygen . . . . . = 8	208
..	Peroxide	(do.)	1 Mercury . . . . . =200 2 Oxygen . . . . (8×2)= 16	216
..	Protochloride . . .	(do.)	1 Mercury . . . . . =200 1 Chlorine . . . . . = 36	236
..	Perchloride		1 Mercury . . . . . =200 2 Chlorine . . . (36×2)= 72	272
..	Protiodide . . .	(theory)	1 Mercury . . . . . =200 1 Iodine . . . . . =125	325
..	Periodide	(do.)	1 Mercury . . . . . =200 2 Iodine . . . (125×2)=250	450
..	Sulphuret . . .	(Guibourt)	1 Mercury . . . . . =200 1 Sulphur . . . . . = 16	216
..	Bisulphuret	(do.)	1 Mercury . . . . . =200 2 Sulphur . . . (16×2)= 32	232

MERCURY—

..	Protacetate . . .	(theory)	1 Protoxide of Mercury . = 208 1 Acetic acid . . . . . = 50	258
..	.. *crystallized* . .	(Thomson)	1 Anhydrous protacetate . = 258 4 Water . . . . (9×4)= 36	294
..	Peracetate . . .	(theory)	1 Peroxide . . . . . = 216 2 Acetic acid . . (50×2)=100	316
..	Protarseniate	(do.)	1 Protoxide . . . . . = 208 1 Arsenic acid . . . . = 62	270
..	Perarseniate . . .	(do.)	1 Peroxide . . . . . = 216 2 Arsenic acid . . (62×2)=124	340
..	Protobenzoate . . .	(do.)	1 Protoxide . . . . . = 208 1 Benzoic acid . . . . = 120	328
..	Protoborate . . .	(do.)	1 Protoxide . . . . . = 208 1 Boracic acid . . . . = 24	232
..	Protocarbonate .	(Bergman)	1 Protoxide . . . . . = 208 1 Carbonic acid . . . . = 22	230
..	Percarbonate . . .	(theory)	1 Peroxide . . . . . = 216 2 Carbonic acid . . (22×2)= 44	260
..	Protochlorate . . .	(do.)	1 Protoxide . . . . = 208 1 Chloric acid . . . . = 76	284
..	Perchlorate . . .	(do.)	1 Peroxide . . . . . = 216 2 Chloric acid . . (76×2)=152	368

MERCURY—

..	Protochromate . .	(theory)	1 Protoxide . . . . . =208 1 Chromic acid . . . . = 52	260
..	Protocitrate	(do.)	1 Protoxide . . . . . =208 1 Citric acid . . . . . = 58	266
..	Percitrate	(do.)	1 Peroxide . . . . . =216 2 Citric acid . . (58×2)=116	332
..	Cyanate?			
..	Cyanuret . .	(Gay-Lussac)	1 Mercury . . . . . =200 2 Cyanogen . . . (26×2)= 52	252
..	Protonitrate . .	(theory)	1 Protoxide . . . . . =208 1 Nitric acid . . . . . = 54	262
..	.. *crystallized* . .	(Thomson)	1 Anhydrous protonitrate . =262 2 Water . . . . (9×2)= 18	280
..	Subprotonitrate .	(Grouvelle)	2 Protoxide . . (208×2)=416 1 Nitric acid . . . . . = 54	470
..	Pernitrate	(theory)	1 Peroxide . . . . . =216 2 Nitric acid . . (54×2)=108	324
..	Protoxalate	(do.)	1 Protoxide . . . . . =208 1 Oxalic acid . . . . . =36	244
..	Protophosphate . .	(do.)	1 Protoxide . . . . . =208 1 Phosphoric acid . . . = 28	236
..	Perphosphate . . .	(do.)	1 Peroxide . . . . . =216 2 Phosphoric acid . (28×2)=56	272

MERCURY—

.. Protosulphate, *dry* . (theory) { 1 Protoxide . . . . . =208 ; 1 Sulphuric acid . . . . = 40 } 248

.. .. *crystallized* . (Thomson) { 1 Anhydrous Protosulphate =248 ; 2 Water . . . . (9×2)= 18 } 266

.. Persulphate . . . (theory) { 1 Peroxide . . . . . =216 ; 2 Sulphuric acid . (40×2)= 80 } 296

.. Subpersulphate . . (do.) { 1 Peroxide . . . . . =216 ; 1 Sulphuric acid . . . = 40 } 256

.. Prototartrate . . . . (do.) { 1 Protoxide . . . . . =208 ; 1 Tartaric acid . . . . = 66 } 274

MOLYBDENUM . . . (Bucholz) . . . . . = 48

.. Oxide.—See ACID, Molybdous, &c.

.. Bisulphuret . . . . . { 1 Molybdenum . . . . =48 ; 2 Sulphur . . . (16×2)=32 } 80

NICKEL . . . . . = 30

.. Protoxide . . . (Richter) { 1 Nickel . . . . . =30 ; 1 Oxygen . . . . . = 8 } 38

.. Peroxide . . . (Rolhoff) { 1 Nickel . . . . . =30 ; 1½ Oxygen . . . (8×1·5)=12 } 42

.. Chloride . . . . (theory) { 1 Nickel . . . . . =30 ; 1 Chlorine . . . . . =36 } 66

.. Iodide . . . . . (do.) { 1 Nickel . . . . . = 30 ; 1 Iodine . . . . . =125 } 155

NICKEL—

..	Sulphuret . . .	(E. Davy)	1 Nickel . . . . . =30 1 Sulphur . . . . . =16		46
..	Phosphuret . . .	(theory)	1 Nickel . . . . . =30 1 Phosphorus . . . . =12		42
..	Acetate	(do.)	1 Oxide . . . . . =38 1 Acetic acid . . . . . =50		88
..	.. *crystallized* . .		1 Anhydrous Acetate . . =88 5 Water . . . . (9×5)=45		133
..	Arseniate		1 Oxide . . . . . =38 1 Arsenic acid . . . . =62		100
..	Arsenite		1 Oxide . . . . . =38 1 Arsenious acid . . . . =54		92
..	Carbonate . . .	(theory)	1 Oxide . . . . . =38 1 Carbonic acid . . . . =22		60
..	.. *hydrated* .	(Thomson)	1 Anhydrous Carbonate . . =60 3 Water . . . . (9×3)=27		87
..	Nitrate	(theory)	1 Oxide . . . . . =38 1 Nitric acid . . . . . =54		92
..	.. *crystallized*	(Thomson)	1 Anhydrous Nitrate . . =92 5 Water . . . . (9×5)=45		137
..	Oxalate	(theory)	1 Oxide . . . . . =38 1 Oxalic acid . . . . . =36		74

NICKEL—				
..	Oxalate, *hydrated* (Thomson)	1 Anhydrous Oxalate . . =74 4 Water . . . . (9×4)=36		110
..	Phosphate . . . (theory)	1 Oxide . . . . . =38 1 Phosphoric acid . . . =28		66
..	.. *hydrated* (Thomson)	1 Anhydrous Phosphate . . =66 3 Water . . . . . (9×3)=27		93
..	Sulphate, *anhydrous* (theory)	1 Oxide . . . . . =38 1 Sulphuric acid . . . . =40		78
..	.. *crystallized* (Phillips)	1 Anhydrous Sulphate . . =78 7 Water . . . . . (9×7)=63		141
..	.. ammonio-sulphate, *crystallized* . . . (Thomson)	1 Sulphate of Nickel . . =78 1 Sulphate of Ammonia . . =56 7 Water . . . . (9×7)=63		197
..	.. potassa-sulphate, *crystallized* . . . . . (do.)	1 Sulphate of Nickel . . =78 1 Sulphate of Potassa . . = 88 6 Water . . . . (9×6)=54		220
..	Tartrate . . . . . (do.)	1 Oxide . . . . . =38 1 Tartaric acid . . . . . =66		104
NITROGEN . . . . . (Prout) . . . . . =				14
..	protoxide, *Nitrous Oxide* . . . (Davy and Gay-Lussac.)	1 Nitrogen . . . . . =14 1 Oxygen . . . . . = 8		22
..	deutoxide, *Nitric Oxide* (do.)	1 Nitrogen . . . . . =14 2 Oxygen . . . . (8×2)=16		30

NITROGEN—				
.. Chloride		1 Nitrogen	= 14	122
		3 Chlorine . . .	(36×3)=108	
.. Iodide . . .	(Gay-Lussac)	1 Nitrogen	= 14	389
		3 Iodine . . .	(125×3)=375	
.. Carburet.—See CYANOGEN.				
OXYGEN	(Prout)		=	8
PALLADIUM	(Berzelius)		=	56
.. Oxide	(do.)	1 Palladium	=56	64
		1 Oxygen	= 8	
.. Sulphuret	(do.)	1 Palladium	=56	72
		1 Sulphur	=16	
PHOSPHORUS	(Davy)		=	12
.. protochloride	(do.)	1 Phosphorus	=12	48
		1 Chlorine	=36	
.. perchloride	(do.)	1 Phosphorus	=12	84
		2 Chlorine . . .	(36×2)=72	
.. iodide	(theory)	1 Phosphorus	= 12	137
		1 Iodine	=125	
.. Sulphuret . .	(Faraday)	1 Phosphorus	=12	28
		1 Sulphur	=16	
PLATINUM	(Berzelius)		=	96
.. Protoxide	(do.)	1 Platinum	=96	104
		1 Oxygen	= 8	

PLATINUM—				
.. Peroxide . . .	(Berzelius)	1 Platinum . . . . . =96 2 Oxygen . . . . (8×2)=16		112
.. Protochloride?		1 Platinum . . . . . =96 1 Chlorine . . . . . =36		136
.. Perchloride		1 Platinum . . . . . =96 2 Chlorine . . . (36×2)=72		168
.. .. ammonio-perchloride .		1 Perchloride . . . . =168 1 Muriate of Ammonia . = 54		222
.. Phosphuret		1 Platinum . . . . . =96 1 Phosphorus . . . . . =12		108
.. Sulphuret		1 Platinum . . . . . =96 1 Sulphur . . . . . =16		112
.. .. bisulphuret		1 Platinum . . . . . =96 2 Sulphur . . . (16×2)=32		128
POTASSIUM	(Davy)	. . . . . =		40
.. Protoxide (potassa) .	(do.)	1 Potassium . . . . . =40 1 Oxygen . . . . . = 8		48
.. .. *hydrated* . .	(do.)	1 Anhydrous Protoxide . . =48 1 Water . . . . . = 9		57
.. Peroxide . .	Gay-Lussac and Thenard	1 Potassium . . . . . =40 3 Oxygen . . . . (8×3)=24		64
.. Chloride	(Davy)	1 Potassium . . . . . =40 1 Chlorine . . . . . =36		76

Potassium—				
.. Iodide . . .	(Gay-Lussac)	1 Potassium	= 40	165
		1 Iodine	= 125	
.. Phosphuret		1 Potassium	= 40	52
		1 Phosphorus	= 12	
.. Sulphuret . . .	(Davy)	1 Potassium	= 40	56
		1 Sulphur	= 16	
.. Bisulphuret . . .	(Berzelius)	1 Potassium	= 40	72
		2 Sulphur . . .	(16 × 2) = 32	
.. Acetate	(theory)	1 Potassa	= 48	98
		1 Acetic acid	= 50	
.. Arseniate	(do.)	1 Potassa	= 48	110
		1 Arsenic acid	= 62	
.. Arsenite	(do.)	1 Potassa	= 48	102
		1 Arsenious acid . . .	= 54	
.. Binarseniate	(do.)	1 Potassa	= 48	172
		2 Arsenic acid . .	(62 × 2) = 124	
.. .. *crystallized* . . .	(Thomson)	1 Anhydrous Binarseniate .	= 172	181
		1 Water	= 9	
.. Benzoate	(theory)	1 Potassa	= 48	168
		1 Benzoic acid	= 120	
.. .. *crystallized* . .	(Thomson)	1 Anhydrous Benzoate . .	= 168	195
		3 Water	(9 × 3) = 27	

Potassium—				
..	Borate	(theory)	1 Potassa . . . . . =48 1 Boracic acid . . . . =24	72
..	Biborate	(do.)	1 Potassa . . . . . =48 2 Boracic acid . . (24×2)=48	96
..	Carbonate . .	(Wollaston)	1 Potassa . . . . . =48 1 Carbonic acid . . . . =22	70
..	.. *crystallized*	(Henry)	1 Anhydrous Carbonate . . =70 2 Water . . . . (9×2)=18	88
..	Bicarbonate . .	(Wollaston)	1 Potassa . . . . . =48 2 Carbonic acid . . (22×2)=44	92
..	.. *crystallized*	(do.)	1 Potassa . . . . . =48 2 Carbonic acid . . (22×2)=44 1 Water . . . . . = 9	101
..	Chlorate . .	(Gay-Lussac)	1 Potassa . . . . . =48 1 Chloric acid . . . . =76	124
..	.. perchlorate .	(Stadion)	1 Potassa . . . . . =48 1 Perchloric acid . . . . =92	140
..	Chromate . . .	(theory)	1 Potassa . . . . . =48 1 Chromic acid . . . . =52	100
..	.. bichromate . . .	(do.)	1 Potassa . . . . . =48 2 Chromic acid . (52×2)=104	152
..	.. sulphochromate	(Thomson)	1 Chromate of Potassa . =100 6 Sulphate of Potassa(88×6)=528	628

POTASSIUM—

.. Citrate . . . (Vauquelin) { 1 Potassa . . . . . =48 / 1 Citric acid . . . . . =58 } 106

.. Columbate . . . (theory) { 1 Potassa . . . . . = 48 / 1 Columbic acid . . . . =152 } 200

.. Cyanate.

.. Ferrocyanate.

.. Fluoborate . . . (theory) { 1 Potassa . . . . . =48 / 1 Fluoboric acid . . . . =24 } 72

.. Formiate.

.. Gallate.

.. Hydriodate.

.. Hypophosphite . . (theory) { 1 Potassa . . . . . =48 / 1 Hypophosphorous acid . =32 } 80

.. Hyposulphite . . . (do.) { 1 Potassa . . . . . =48 / 2 Hyposulphurous acid (24×2)=48 } 96

.. Iodate . . . . . (do.) { 1 Potassa . . . . . = 48 / 1 Iodic acid . . . . . =165 } 213

.. Malate . . . . . (do.) { 1 Potassa . . . . . =48 / 1 Malic acid . . . . . =60 } 108

.. Molybdate . . . . (do.) { 1 Potassa . . . . . =48 / 1 Molybdic acid . . . . =72 } 120

.. Nitrate . . . (Wollaston) { 1 Potassa . . . . . =48 / 1 Nitric acid . . . . . =54 } 102

Potassium—				
.. Oxalate . . .	(Wollaston)	1 Potassa	=48	84
		1 Oxalic acid	=36	
.. .. binoxalate . . .	(do.)	1 Potassa	=48	120
		2 Oxalic acid . . .	(36×2)=72	
.. .. quadroxalate . .	(do.)	1 Potassa	=48	192
		4 Oxalic acid . .	(36×4)=144	
.. .. *crystallized* . .		1 Anhydrous quadroxalate	=192	255
		7 Water	(9×7)= 63	
.. Phosphate . . .	(theory)	1 Potassa	=48	76
		1 Phosphoric acid . . .	=28	
.. .. *crystallized* . .	(Thomson)	1 Anhydrous phosphate . .	=76	85
		1 Water	= 9	
.. Phosphite . . .	(theory)	1 Potassa	=48	68
		1 Phosphorous acid . . .	=20	
.. Saclactate	(do.)	1 Potassa	= 48	153
		1 Saclactic acid	=105	
.. Succinate	(do.)	1 Potassa	=48	98
		1 Succinic acid	=50	
.. Sulphate . . .	(Wenzel)	1 Potassa	=48	88
		1 Sulphuric acid	=40	
.. .. bisulphate, *dry* . .	(Wollaston)	1 Potassa	=48	128
		2 Sulphuric acid . .	(40×2)=80	
.. .. *crystallized* .	(Thomson)	1 Anhydrous bisulphate .	=128	146
		2 Water	(9×2)= 18	

POTASSIUM—

.. .. ammonio-sulphate . (Thomson) { 1 Sulphate of Potassa . . =88; 1 Sulphate of Ammonia . . =56; 4 Water . . . . (9×4)=36 } 180

.. Sulphite . . . . (theory) { 1 Potassa . . . . . =48; 1 Sulphurous acid . . . =32 } 80

.. Tartrate . . . (Berzelius) { 1 Potassa . . . . . =48; 1 Tartaric acid . . . . =66 } 114

.. .. bitartrate . . . (theory) { 1 Potassa . . . . . = 48; 2 Tartaric acid . . [(66×2)=132 } 180

.. .. *crystallized* . (Thomson) { 1 Anhydrous bitartrate . . =180; 2 Water . . . . (9×2)= 18 } 198

RHODIUM . . . . . (do.) . . . . . = 44

.. Protoxide . . . . (do.) { 1 Rhodium . . . . . =44; 1 Oxygen . . . . . = 8 } 52

.. Peroxide . . . . (do.) { 1 Rhodium . . . . . =44; 2 Oxygen . . . . (8×2)=16 } 60

SELENIUM . . . . (Berzelius) . . . . . = 40

.. Protoxide . . . . . { 1 Selenium . . . . =40; 1 Oxygen . . . . . = 8 } 48

.. Peroxide.—(See ACID, Selenic.)

SILICIUM . . . . . (Davy) . . . . . = 8

.. Oxide *(Silica)* . . (do.) { 1 Silicium . . . . . = 8; 1 Oxygen . . . . . = 8 } 16

Silver		(Davy)	=	110
..	Oxide	(do.)	1 Silver = 110 1 Oxygen = 8	118
..	Chloride	(do.)	1 Silver = 110 1 Chlorine = 36	146
..	Iodide	(theory)	1 Silver = 110 1 Iodine = 125	235
..	Fluoride	(do.)	1 Silver = 110 1 Fluorine = 16	126
..	Phosphuret	(do.)	1 Silver = 110 1 Phosphorus = 12	122
..	Sulphuret	(Berzelius)	1 Silver = 110 1 Sulphur = 16	126
..	Acetate	(Thomson)	1 Oxide of Silver = 118 1 Acetic acid = 50	168
..	Arseniate	(theory)	1 Oxide of Silver = 118 1 Arsenic acid = 62	180
..	Benzoate	(do.)	1 Oxide of Silver = 118 1 Benzoic acid = 120	238
..	Borate	(do.)	1 Oxide of Silver = 118 1 Boracic acid = 24	142
..	Carbonate	(Bergman)	1 Oxide of Silver = 118 1 Carbonic acid = 22	140

SILVER—

..	Chlorate	(theory)	1 Oxide of Silver . . . = 118 1 Chloric acid . . . . = 76	194
..	Chromate . .	(Thomson)	1 Oxide of Silver . . . = 118 1 Chromic acid . . . . = 52	170
..	Citrate . . .	(Vauquelin)	1 Oxide of Silver . . . = 118 1 Citric acid . . . . . = 58	176
..	Cyanate.			
..	Formiate . . .	(theory)	1 Oxide of Silver . . . = 118 1 Formic acid . . . . = 37	155
..	Gallate	(do.)	1 Oxide of Silver . . . = 118 1 Gallic acid . . . . . = 63	181
..	Iodate	(do.)	1 Oxide of Silver . . . = 118 1 Iodic acid . . . . . = 165	283
..	Malate	(do.)	1 Oxide of Silver . . . = 118 1 Malic acid . . . . . = 60	178
..	Molybdate	(do.)	1 Oxide of Silver . . . = 118 1 Molybdic acid . . . = 72	190
..	Nitrate	(Proust)	1 Oxide of Silver . . . = 118 1 Nitric acid . . . . . = 54	172
..	Oxalate . . .	(Thomson)	1 Oxide of Silver . . . = 118 1 Oxalic acid . . . . . = 36	154
..	Phosphate . . .	(theory)	1 Oxide of Silver . . . = 118 1 Phosphoric acid . . . = 28	146
..	Saclactate	(do.)	1 Oxide of Silver . . . = 118 1 Saclactic acid . . . = 105	223

SILVER—				
.. Seleniate . . .	(Berzelius)	1 Oxide of Silver . . . = 118 1 Selenic acid . . . . = 56		174
.. Succinate . . .	(theory)	1 Oxide of Silver . . . = 118 1 Succinic acid . . . . = 50		168
.. Sulphate . . .	(Bergman)	1 Oxide of Silver . . . = 118 1 Sulphuric acid . . . . = 40		158
.. Sulphite	(theory)	1 Oxide of Silver . . . = 118 1 Sulphurous acid . . . = 32		150
.. Tartrate . . .	(Thomson)	1 Oxide of Silver . . . . = 118 1 Tartaric acid . . . . = 66		184
SODIUM	(Davy)		=	24
.. Protoxide, *(Soda)* . .	(do.)	1 Sodium . . . . . = 24 1 Oxygen . . . . . = 8		32
.. .. *hydrated* . .	(do.)	1 Anhydrous Soda . . . = 32 1 Water . . . . . = 9		41
.. Peroxide . .	(Gay-Lussac)	1 Sodium . . . . . = 24 1½ Oxygen . . . (8 × 1·5) = 12		36
.. Chloride . . .	(Marcet)	1 Sodium . . . . . = 24 1 Chlorine . . . . . = 36		60
.. Iodide . . .	(Gay-Lussac)	1 Sodium . . . . . = 24 1 Iodine . . . . . = 125		149
.. Fluoride	(theory)	1 Sodium . . . . . = 24 1 Fluorine . . . . . = 16		40

Sodium—				
..	Phosphuret . . . (theory)	1 Sodium . . . . . =24 1 Phosphorus . . . . . =12		36
..	Sulphuret	1 Sodium . . . . . =24 1 Sulphur . . . . . =16		40
..	.. bisulphuret	1 Sodium . . . . . =24 2 Sulphur . . . . (16×2)=32		56
..	Acetate . . . (Berzelius)	1 Soda . . . . . =32 1 Acetic acid . . . . . =50		82
..	.. *crystallized* . . (Thomson)	1 Anhydrous Acetate . . =82 6 Water . . . . (9×6)=54		136
..	Arsenite . . . . (theory)	1 Soda . . . . . =32 1 Arsenious acid . . . =54		86
..	Arseniate, *dry* . . . (do.)	1 Soda . . . . . =32 1 Arsenic acid . . . . . =62		94
..	.. *crystallized* (Thomson)	1 Anhydrous Arseniate . . =94 8 Water . . . . (9×8)=72		166
..	.. binarseniate, *dry* (theory)	1 Soda . . . . . = 32 2 Arsenic acid . . (62×2)=124		156
..	.. *crystallized* . (Thomson)	1 Anhydrous binarseniate . =156 5 Water . . . . . (9×5)=45		201
..	.. Ammonio-arseniate, *crystallized* . . (Mitcherlich)	1 Arseniate of Soda . . . =94 1 Arseniate of Ammonia . =79 8 Water . . . . (9×8)=72		245

SODIUM—

.. ..	Potassa-arseniate, *crystallized* . (Mitcherlich)	1 Arseniate of Soda . . . = 94 1 Arseniate of Potassa . =110 18 Water . . . . (9×18)=162	366
..	Biborate, (*Borax,*) *crystallized* (Thomson)	1 Soda . . . . . =32 2 Boracic acid . . (24×2)=48 8 Water . . . . . (9×8)=72	152
..	Boro-tartrate of Potassa and Soda . . . . . (do.)	1 Biborate of Soda . . . = 80 2 Bitartrate of Potassa (170×2)=340 12 Water . . . . (9×12)=108	528
..	Carbonate, *dry* . . (Berard)	1 Soda . . . . . =32 1 Carbonic acid . . . . =22	54
.. ..	*crystallized* (do.)	1 Anhydrous Carbonate . . =54 10 Water . . . . (9×10)=90	144
.. ..	Bicarbonate, *dry* . . (do.)	1 Soda . . . . . =32 2 Carbonic acid . . (22×2)=44	76
.. ..	*crystallized* (do.)	1 Anhydrous bicarbonate . =76 2 Water . . . . (9×2)=18	94
.. ..	Sesquicarbonate (Phillips)	1 Soda . . . . . =32 1½ Carbonic acid .(22×1·5)=33 2 Water . . . . (9×2)=18	83
..	Chlorate . . . . (theory)	1 Soda . . . . . =32 1 Chloric acid . . . . =76	108
..	Chromate . . . . . (do.)	1 Soda . . . . . =32 1 Chromic acid . . . . =52	84

SODIUM—

..	Chromate, *crystallized* (Thomson)	1 Anhydrous Chromate	= 84	192
		12 Water	(9×12)=108	
..	Citrate (Vauquelin)	1 Soda	=32	90
		1 Citric acid	=58	
..	Columbate (Thomson)	1 Soda	= 32	274
		1 Columbic acid	=152	
		10 Water	(9×10)=90	
..	Hyposulphate (theory)	1 Soda	=32	104
		1 Hyposulphuric acid	=72	
..	Hyposulphite (Herschel)	1 Soda	=32	80
		2 Hyposulphurous acid	(24×2)=48	
..	Iodate (theory)	1 Soda	= 32	197
		1 Iodic acid	=165	
..	Nitrate (Wenzel)	1 Soda	=32	86
		1 Nitric acid	=54	
..	Oxalate (Vogel)	1 Soda	=32	68
		1 Oxalic acid	=36	
..	Phosphate (theory)	1 Soda	=32	60
		1 Phosphoric acid	=28	
..	.. *crystallized* (Thomson)	1 Anhydrous Phosphate	= 60	168
		12 Water	(9×12)=108	
..	.. biphosphate, *crystallized* (Mitcherlich)	1 Soda	=32	115
		2 Phosphoric acid	(28×2)=56	
		3 Water	(9×3)=27	

SODIUM—

..	.. ammonio-phosphate, *crystallized* . . (Thomson)	1 Phosphate of Soda . . .	=60	249
		1 Phosphate of Ammonia .	=45	
		16 Water . . .	(9×16)=144	
..	.. potassa-phosphate, *crystallized* . . (Mitcherlich)	1 Phosphate of Soda . .	= 60	271
		1 Phosphate of Potassa .	= 76	
		15 Water	(9×15)=135	
..	Saclactate . . . . (do.)	1 Soda	= 32	182
		1 Saclactic acid	=105	
		5 Water	(9×5)= 45	
..	Succinate . . . . (theory)	1 Soda	=32	82
		1 Succinic acid	=50	
..	.. *crystallized* . . (Thomson)	1 Anhydrous Succinate . .	=82	136
		6 Water	(9×6)=54	
..	Sulphate, *dry* . . (Kirwan)	1 Soda	=32	72
		1 Sulphuric acid	=40	
	.. *crystallized* . (do.)	1 Anhydrous Sulphate . .	=72	162
		10 Water	(9×10)=90	
..	.. ammonio-sulphate, *crystallized* . (Thomson)	1 Sulphate of Soda . . .	=72	182
		1 Sulphate of Ammonia .	=56	
		6 Water	(9×6)=54	
..	Sulphite . . (Fourcroy)	1 Soda	=32	64
		1 Sulphurous acid . . .	=32	
..	.. *crystallized* . . (do.)	1 Anhydrous Sulphite . .	=64	136
		8 Water	(9×8)=72	

SODIUM—				
.. Tartrate	(theory)	1 Soda	=32	98
		1 Tartaric acid	=66	
.. .. *crystallized* . .	(Thomson)	1 Anhydrous Tartrate . . .	=98	116
		2 Water	(9×2)=18	
.. .. potassa-tartrate, *crystallized*	(do.)	1 Tartrate of Soda . . .	= 98	284
		1 Tartrate of Potassa . .	=114	
		8 Water	(9×8)=72	
.. Tungstate	(do.)	1 Soda	= 32	206
		1 Tungstic acid	=120	
		6 Water	(9×6)= 54	
.. Urate	(do.)	1 Soda	=32	113
		1 Uric acid	=72	
		1 Water	= 9	
STRONTIUM	(Stromeyer)		=	44
Oxide, *Strontia* . . .	(do.)	1 Strontium	=44	52
		1 Oxygen	= 8	
.. Chloride, *dry* . . .	(do.)	1 Strontium	=44	80
		1 Chlorine	= 36	
.. .. *crystallized*	(Phillips)	1 Anhydrous Chloride . .	=80	125
		5 Water	(9×5)=45	
.. Iodide	(theory)	1 Strontium	= 44	169
		1 Iodine	=125	

STRONTIUM—

..	Phosphuret . . .	(theory)	1 Strontium . . . . . =44 1 Phosphorus . . . . . =12	56
..	Sulphuret	(do.)	1 Strontium . . . . . =44 1 Sulphur . . . . . =16	60
..	Acetate	(do.)	1 Strontia . . . . . =52 1 Acetic acid . . . . . =50	102
..	.. *crystallized*	(Thomson)	1 Anhydrous Acetate . . =102 1 Water . . . . . = 9	111
..	Arseniate	(theory)	1 Strontia . . . . . =52 1 Arsenic acid . . . . =62	114
..	.. *crystallized* . .	(Thomson)	1 Anhydrous Arseniate . =114 8 Water . . . . (9×8)= 72	186
..	Arsenite	(theory)	1 Strontia . . . . . =52 1 Arsenious acid . . . . =54	106
..	Borate	(do.)	1 Strontia . . . . . =52 1 Boracic acid . . . . =24	76
..	Carbonate . .	(Stromeyer)	1 Strontia . . . . . =52 1 Carbonic acid . . . . =22	74
..	Chlorate	(theory)	1 Strontia . . . . . =52 1 Chloric acid . . . . =76	128
..	Chromate	(do.)	1 Strontia . . . . . =52 1 Chromic acid . . . . =52	104

STRONTIUM—

..	Citrate	(theory)	1 Strontia . . . . . =52 1 Citric acid . . . . . =58	110
..	Iodate	(do.)	1 Strontia . . . . . =52 1 Iodic acid . . . . . =165	217
..	Nitrate . . .	(Stromeyer)	1 Strontia . . . . . =52 1 Nitric acid . . . . =54	106
..	Oxalate	(theory)	1 Strontia . . . . . =52 1 Oxalic acid . . . . . =36	88
..	.. binoxalate . . .	(do.)	1 Strontia . . . . . =52 2 Oxalic acid . . (36×2)=72	124
..	Phosphate	(do.)	1 Strontia . . . . . =52 1 Phosphoric acid . . . =28	80
..	Sulphate . .	(Stromeyer)	1 Strontia . . . . . =52 1 Sulphuric acid . . . . =40	92
..	Tartrate	(theory)	1 Strontia . . . . . =52 1 Tartaric acid . . . . =66	118

SULPHUR . . . . . (Davy) . . . . . = 16

..	Chloride	(do.)	1 Sulphur . . . . . =16 1 Chlorine . . . . . =36	52
..	Iodide	(theory)	1 Sulphur . . . . . =16 1 Iodine . . . . . =125	141

.. Carburet, (see CARBON.)

SULPHUR—

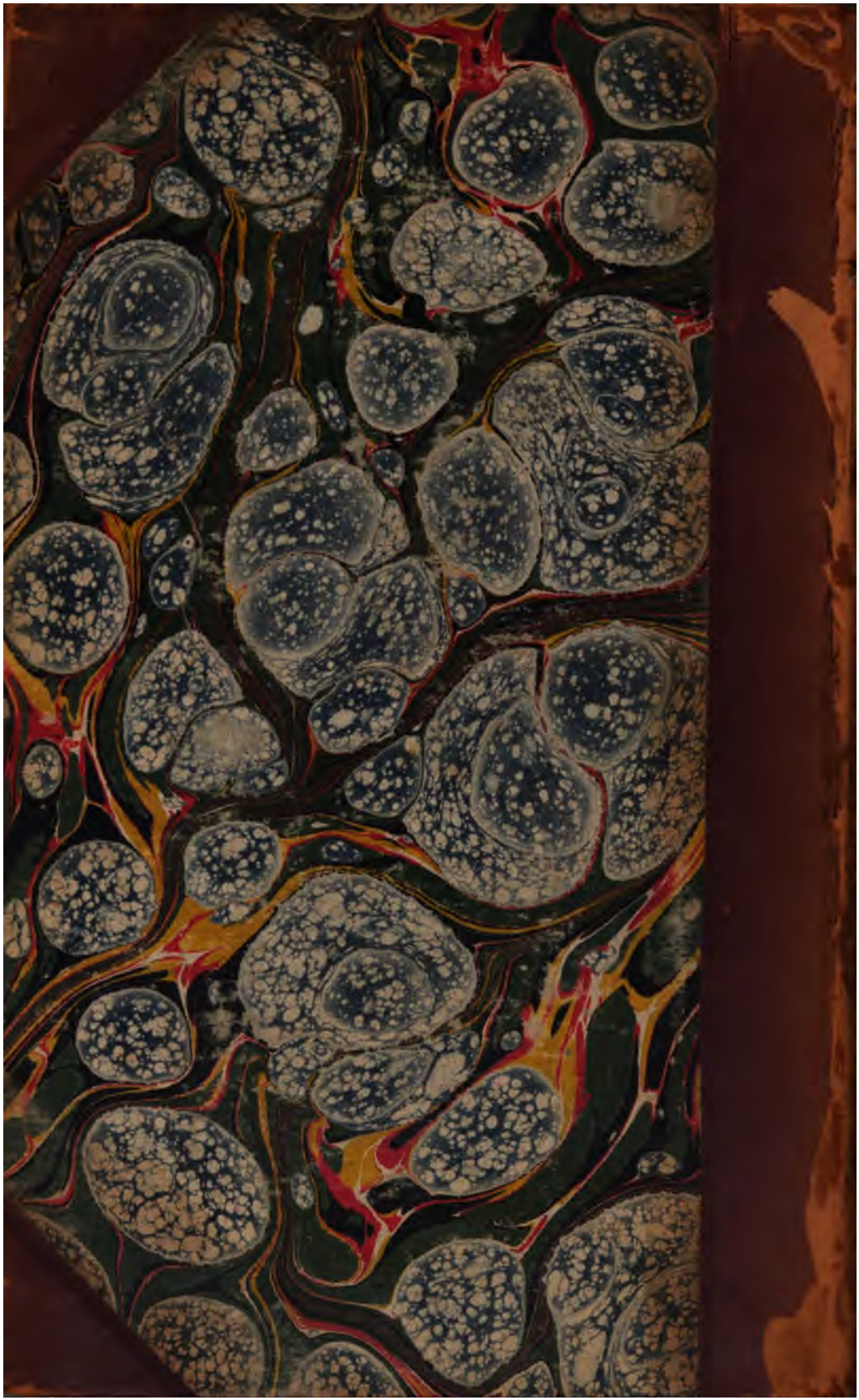
.. Phosphuret, (see PHOSPHORUS.)

SULPHURETTED HYDROGEN	(Higgins)	1 Sulphur	=16	17
		1 Hydrogen	= 1	
.. Bisulphuret of Hydrogen	(Dalton)	2 Sulphur	(16×2)=32	33
		1 Hydrogen	= 1	
TELLURIUM	(Berzelius)		=	32
.. Oxide	(do.)	1 Tellurium	=32	40
		1 Oxygen	= 8	
.. Chloride	(Davy)	1 Tellurium	=32	68
		2 Chlorine	=36	
.. Hydruret, *solid* ?				
.. Hydruret, *gaseous*	(Berzelius)	1 Tellurium	=32	33
		1 Hydrogen	= 1	
TIN	(J. Davy)		=	58
.. Protoxide . .	(Gay-Lussac)	1 Tin	=58	66
		1 Oxygen	= 8	
.. Peroxide . .	(Klaproth)	1 Tin	=58	74
		2 Oxygen	(8×2)=16	
.. Protochloride . .	(J. Davy)	1 Tin	=58	94
		1 Chlorine	=36	
.. Perchloride	(do.)	1 Tin	=58	130
		2 Chlorine . . .	(36×2)=72	

TIN—				
.. Iodide	(theory)	1 Tin . . . . . = 58		183
		1 Iodine . . . . . = 125		
.. Sulphuret . .	(J. Davy)	1 Tin . . . . . = 58		74
		1 Sulphur . . . . . = 16		
.. .. bisulphuret . . .	(do.)	1 Tin . . . . . = 58		90
		2 Sulphur . . . (16 × 2) = 32		
.. Phosphuret . . .	(theory)	1 Tin . . . . . = 58		70
		1 Phosphorus . . . . = 12		
TUNGSTEN	(Bucholz) . . . . . =			96
.. Deutoxide . .	(Berzelius)	1 Tungsten . . . . . = 96		112
		2 Oxygen . . . . (8 × 2) = 16		
.. Peroxide.—See ACID, Tungstic.				
.. Tungstate of Lime	(Berzelius)	1 Tungstic acid . . . . = 120		148
		1 Lime . . . . . = 28		
.. Bisulphuret	(do.)	1 Tungsten . . . . . = 96		128
		2 Sulphur . . . . (16 × 2) = 32		
TITANIUM . .	(Rose and Thomson) . . . . . =			3?
.. Protoxide	(do.)	1 Titanium . . . . . = 32		40
		1 Oxygen . . . . . = 8		
.. Peroxide, (*Titanic Acid*)	(do.)	1 Titanium . . . . . = 32		48
		2 Oxygen . . . . (8 × 2) = 16		
.. Bisulphuret	(do.)	1 Titanium . . . . . = 32		64
		2 Sulphur . . . (16 × 2) = 32		

Uranium	(Thomson)	=		208
.. Protoxide	(do)	1 Uranium	=208	216
		1 Oxygen	= 8	
.. Peroxide . . .	(Berzelius)	1 Uranium	=208	220
		1½ Oxygen . . .	(8×1·5)= 12	
Water	(Prout)	1 Hydrogen	= 1	9
		1 Oxygen	= 8	
Yttrium	(Thomson)	=		34
.. Oxide, (*Yttria*) . .	(do.)	1 Yttrium	=34	42
		1 Oxygen	= 8	
Zinc	(Henry)	=		34
.. Oxide	(do.)	1 Zinc	=34	42
		1 Oxygen	= 8	
.. Chloride . . .	(J. Davy)	1 Zinc	=34	70
		1 Chlorine	=36	
.. Iodide . . .	(Thomson)	1 Zinc	= 34	159
		1 Iodine	=125	
.. Phosphuret . . .	(theory)	1 Zinc	=34	46
		1 Phosphorus	=12	
.. Sulphuret . .	(E. Davy)	1 Zinc	=34	50
		1 Sulphur	=16	

ZINC—

..	Acetate, *crystallized* (Thomson)	1 Oxide of Zinc	=42	155
		1 Acetic acid	=50	
		6 Water	(9×7)=63	
..	Arseniate . . . . (theory)	1 Oxide of Zinc	=42	104
		1 Arsenic acid	=62	
..	Carbonate . . . (do.)	1 Oxide of Zinc . .		
		1 Carbonic acid . .		
..	.. *hydrated* (Thomson)	1 Anhydrous Carbonate . .		
		1 Water . . .		
..	Chlorate . . . . (theory)	1 Oxide of Zinc	=42	118
		1 Chloric acid	=76	
..	Chromate . . (Thomson)	1 Oxide of Zinc	=42	94
		1 Chromic acid	=52	
..	Citrate . . . . (theory)	1 Oxide of Zinc	=42	100
		1 Citric acid	=58	
..	Iodate . . . . . (do.)	1 Oxide of Zinc	= 42	207
		1 Iodic acid	=165	
..	Nitrate . . . . . (do.)	1 Oxide of Zinc	=42	
		1 Nitric acid	=54	
..	.. *crystallized* (Thomson)	1 Anhydrous Nitrate . . .	=96	150
		6 Water	(9×6)=54	
..	Oxalate . . . . (theory)	1 Oxide of Zinc	=42	78
		1 Oxalic acid	=36	

ZINC—				
.. Phosphate . . .	(theory)	1 Oxide of Zinc	=42	70
		1 Phosphoric acid . . .	=28	
.. Sulphate, *dry*		1 Oxide of Zinc	=42	80
		1 Sulphuric acid		
				45
		[illegible] of Zinc . . .	=82	
[illegible]phate, [illegible]		[illegible]nia . .	=56	201
[illegible] . (Th[illegible]		[illegible] . . .	(9×7)=63	
.. .. potassa-sulphate, *crystallized*	(do.)	[illegible]phate of Zinc . . .	=82	233
		1 Sulphate of Potassa . .	=88	
		7 Water	(9×7)=63	
.. Sulphite		1 Oxide of Zinc	=42	74
		1 Sulphurous acid . . .	=32	
.. Tartrate	(theory)	1 Oxide of Zinc	=42	108
		1 Tartaric acid	=66	
ZIRCONIUM	(Thomson)			= 40
.. Oxide, (*Zirconia*) . .	(do.)	1 Zirconium	=40	48
		1 Oxygen	= 8